ELYTRA, Vol. 9, No. 2—Nov. 1981
The Journal of
the Japanese Society of Coleopterology

ハナカミキリ数種の雌交尾器について

窪木　幹夫

Notes on the female genitalia in some Lepturinae (Coleoptera: Cerambycidae)

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カミキリムシの雄交尾器はハムシ上科の中でも形態的な分化の程度は低く，比較的原始的な形態を保持しているが，それでも亜科間に形態の差異が認められる（SHARP and MUIR, 1912; BUGNION, 1931; ZIA, 1936; EHARA, 1954）．ニセクワガタカミキリ亜科の雄交尾器は最も単純でフトカミキリ亜科のそれは，より複雑な構造を持っている．一方，雌交尾器に関する研究は少ない．わずかに TANNER（1927）が stylus, valvifer, proctiger に着目し雄交尾器と同様に亜科レベルでの検討をしている．

筆者は先にハナカミキリ5種の雄交尾器の反転された endophallus の形態について報告した（窪木，1980）．カミキリムシの交尾ではこの雄の反転された endophallus だけが雌の vagina や bursa copulatrix 内に挿入される．カミキリムシの交尾器のうち雄の endophallus や雌の vagina や bursa copulatrix は膜質であったり，内部に隠されているために，ほとんど未調査である．

そこで，筆者は分類学的な興味からだけでなく，カミキリムシの一生の中でも交尾―授精―産卵という重要な生活を知るためにカミキリムシの雌雄交尾器の構造と機能について研究中である，本報ではすでに雄の endophallus が報告されているハナカミキリ5種の雌交尾器の形態について報告し，その機能について若干の考察を加える．

材料と方法

研究に使用したハナカミキリは下記のとおりである．

カラカネハナカミキリ *Gaurotes doris* BATES, 5 exs., 25 Ⅶ 1977, 島々谷（長野県）.

チャイロヒメハナカミキリ *Pidonia debilis*（KRAATZ）, 5 exs., 25 Ⅶ 1977, 島々谷（長野県）.

オオヒメハナカミキリ *Pidonia grallatrix*（BATES）, 3 exs., 25 Ⅶ 1977, 島々谷（長野県）.

ヤツボシハナカミキリ *Leptura arcuata* PANZER, 2 exs., 27 Ⅶ 1972, 浅間山（長野県）.

ヨツスジハナカミキリ *Leptura ochraceofasciata*（MOTSCHULSKY）, 2 exs., 7 Ⅷ 1975, 白金温泉（北海道）.

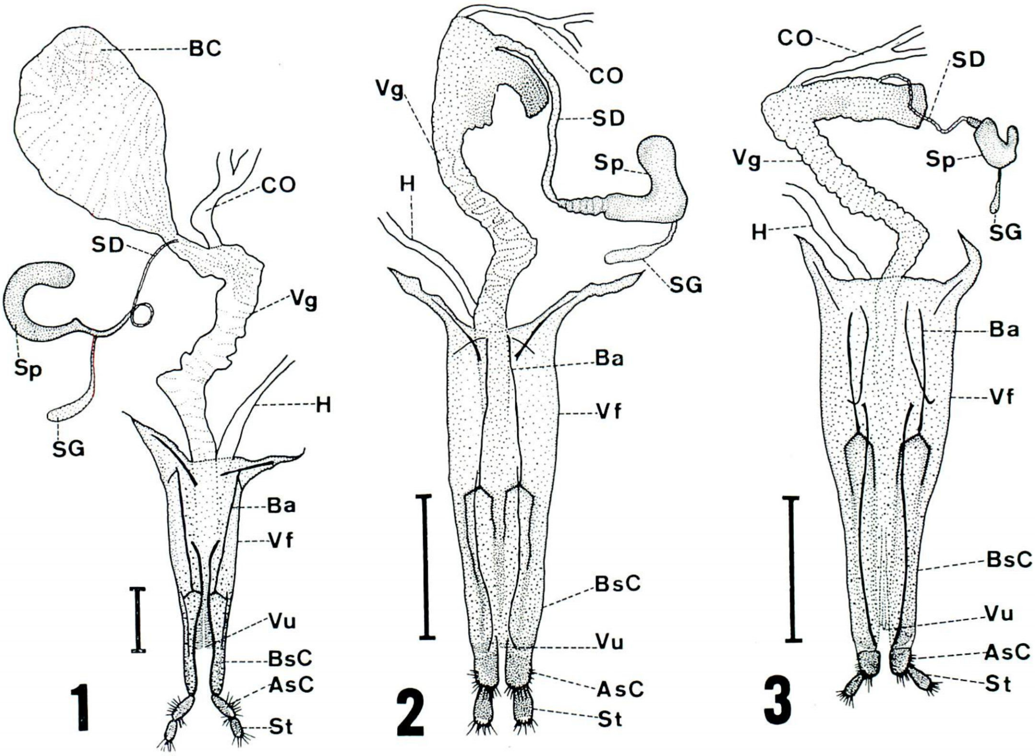
各個体から腹部が取り外され，KOH 7%溶液で加熱処理された．実体顕微鏡下で解体され，交尾器が取り出された．なお，膜質部の観察を容易にするために Eosin で染色された．

結　　果

雌の外部生殖器は腹部環節の第8と第9腹節で，これらは生殖節と呼ばれる．これらの生殖節は合体して産卵管を形成する．カミキリムシの交尾行動からみると，雄の endophallus は反転されて産卵管の先端付近の vulva から内部に挿入される．それゆえ，交尾時には産卵管ばかりでなく，その内部に位置する vagina などの内部生殖器も重要である．

図1～5にハナカミキリ5種の雌交尾器を示した．雌交尾器の一般形態は次のようなものである．stylus は可動的で強く節片化する．coxite は2節からなり，基部は valvifer と合体する．coxite の後節と valvifer はやや節片化した膜質で，内部に節片化した baculum を有する．vagina や bursa copulatrix は多数のしわを持つ膜質で，このしわ状構造は雄の endophallus の挿入により押し拡げられる．spermathecal gland は spermatheca の側壁もしくは spermathecal duct との接続部付近に開口する．spermathecal duct は軟質の管状でその長さは様々で vagina の背壁や bursa copulatrix との接続部付近に開口する．

カラカネハナカミキリ（Fig. 1）の産卵管は約 2.2 mm で，体長の約20%に相当する．stylus は楕円体で強く節片化し，coxite の先端に可動的に接続し，先端に感覚毛



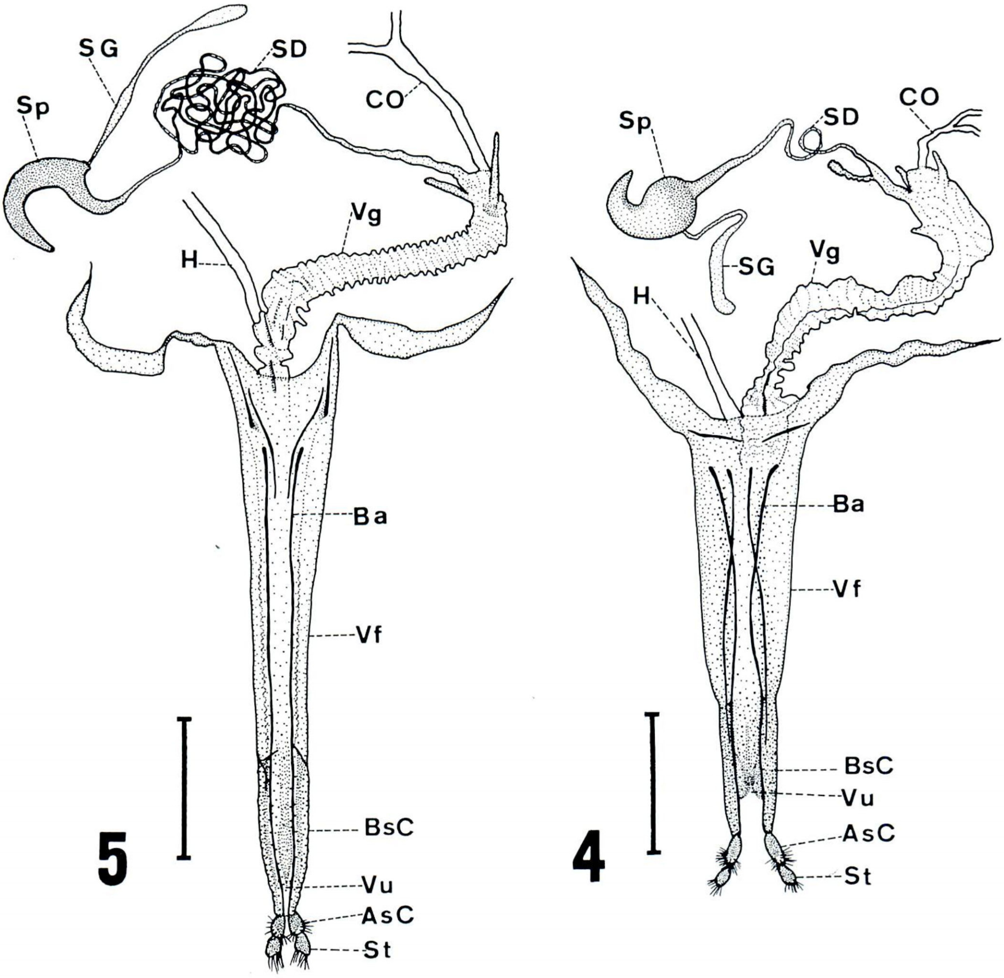
Figs. 1-3. Female genitalia of *Gaurotes* and *Pidonia* spp.

1, *Gaurotes doris* BATES; 2, *Pidonia debilis* (KRAATZ); 3, *P. grallatrix* (BATES). Scale: line=0.5 mm. Abbreviations: AsC, apical segment of coxite; Ba, baculum; BC, bursa copulatrix; BsC, basal segment of coxite; CO, common oviduct; H, hindgut; SD, spermathecal duct; SG, spermathecal gland; Sp, spermatheca; St, stylus; Vf, valvifer; Vg, vagina; Vu, vulva.

を備える．coxite は明瞭に2節に分かれる．前節はやや長い楕円体で節片化し，側部と stylus の接続部付近に感覚毛を持つ．後節は長く発達し，やや節片化した膜質で baculum を有する．valvifer は比較的短く，膜質化が著しく，baculum を有する．基部は矢じり型を呈し，両端に延びる膜質部はやや長く，baculum を有する．vulva は後節の coxite 間に位置する．vagina は比較的長く，特に節片化した部分はなく，先端に bursa copulatrix と common oviduct が接続する．bursa copulatrix は薄い膜質で大きく発達し，卵形体を呈する．bursal duct は太く短い．spermathecal duct は細く，比較的短く，bursal duct に接続する．spermatheca は大きく管状で強く彎曲し，節片化する．基部付近に spermathecal gland が開口する．

チャイロヒメハナカミキリ（Fig. 2）の産卵管は約1.4 mmで，体長の約20%に相当する．stylus は倒卵形体で強く節片化し，coxite の先端に可動的に接続し，先端に感覚毛を備える．coxite は不明瞭に2節に分かれる．前節はやや節片化し，先端と外側に感覚毛を有する．後節は長く発達し，やや節片化した膜質で baculum を有する．valvifer は比較的短く，膜質化が著しく，baculum を有する．基部は矢じり型を呈し，両端に延びる膜質部は長く，baculum を有する．vulva は後節の coxite 間に位置する．vagina は細長く，多数のしわを持ち，先端部は拡がっている．この拡張部は側方の2カ所で膜質がやや厚くなる．common oviduct はこの拡張部と管状の前半部との境目付近に接続する．spermathecal duct はやや太く，比較的短く，vagina の拡張部の側壁に接続する．spermatheca はやや大きく，節片化し，spermathecal gland が側壁に開口する．

オオヒメハナカミキリ（Fig. 3）の産卵管は約1.5 mmで，体長の約15%に相当する．stylus はやや長い倒卵形体で強く節片化し，coxite の先端側部にやや左右に開いて可動的に接続し，先端に感覚毛を備える．coxite は不明瞭に2節に分かれる．前節は短く，強く節片化し，先端と外側に感覚毛を備える．後節は長く発達し，やや節片化した膜質で baculum を有する．valvifer は比較的短く，膜質化が著しく，baculum を有する．基部は矢じり



Figs. 4–5. Female genitalia of *Leptura* spp.
4, *Leptura arcuata* PANZER; 5, *Leptura ochraceofasciata* (MOTSCHULSKY). Scale: line＝1 mm. Abbreviations given in Figs. 1–3.

型を呈し，両端に延びる膜質部はやや長く，baculum を有する．vulva は後節の coxite 間に位置する．vagina は細長く，多数のしわを持ち，先端部は拡がっている．この拡張部は側方の膜質がやや厚くなる．common oviduct はこの拡張部と管状の前半部との境目付近に接続する．spermathecal duct は細く，比較的短く，vagina の拡張部の側壁に接続する． spermatheca はやや小さく，強く節片化し基部に蛇腹型の構造を持ち，spermathecal gland が側壁に開口する．

ヤツボシハナカミキリ（Fig. 4）の産卵管は約3.3mm で，体長の約20%に相当する．stylus は倒卵形体で強く節片化し，coxite の先端に可動的に接続し，先端に感覚毛を備える．coxite は明瞭に2節に分かれる．前節はやや長い楕円体で節片化し，やや左右に開いて後節に可動的に連結し，先端に感覚毛を備える．後節は長く発達し，やや節片化した膜質で baculum を有する．valvifer は特に長く発達し，膜質化が著しく，baculum を有する．基部は矢じり型を呈し，両端に延びる膜質部は長く，基部付近に baculum を持つ． vulva は後節の coxite 間に位置する． vagina は細長い管状で，多数のしわを持つ．先端部はやや拡がり，先端に1対の袋状の突出物が発達し，common oviduct はこれらの間に接続する．spermathecal duct は細く，やや長く，基部付近に1つの袋状構造物が付属し，vagina の先端に接続する． spermatheca はやや大きく，強く節片化し，spermathecal gland が側壁に開口する．

ヨツスジハナカミキリ（Fig. 5）の産卵管は約 4.1mm で，体長の約25%に相当する．stylus は先端が斜めに裁

断された倒卵形体で強く節片化し，coxite の先端に可動的に接続し，先端に感覚毛を備える．coxite は明瞭に2節に分かれる．前節は小さく，倒卵形体で節片化し，先端の内側と外側に感覚毛を備え，後節に可動的に連結する．後節は長く発達し，やや節片化した膜質で baculum を有する．valvifer は特に長く発達し，膜質化が著しく，baculum を有する．基部は矢じり型を呈し，両端に延びる膜質部は極めて長く baculum を欠く．vulva は後節の coxite 間に位置する．vagina は細長い管状で，多数のしわを有し，特に拡大した部分はなく，先端部と valvifer の基部付近にやや節片化した部分を持つ．先端に1対の袋状の突出物が発達し，common oviduct はこれらの間に接続する．spermatheca は大きく，強く節片化し，比較的長い spermathecal gland が側壁に開口する．

考察

カミキリムシの雌交尾器はその機能からみて，①雌交尾器の endophallus を直接受けとめる vagina や bursa copulatrix の形態，②精子の安定的貯蔵のための spermatheca やその付属腺の形態，③受精卵を確実に幼虫の host に産下するための産卵管の形態，の三点から分析する必要がある．

① 内部形態からみて甲虫類の雌交尾器には2つのタイプがある（STEIN, 1847）．1つは vagina が嚢状で bursa copulatrix を持たない sack-shaped vagina で，他は vagina が管状で bursa copulatrix を持つ tubular vagina である．これら両型には種々の移行型が認められる．カラカネハナの vagina は管状で大形の bursa copulatrix を持ち，common oviduct が基部に開口する tubular vagina である．雄の endophallus の先端部の球状構造（窪木，1980）は bursa copulatrix の形と一致する．この形態の一致から，交尾中には雄の endophallus の先端部はこの bursa copulatrix 内に挿入されると考えられる．*Pidonia* 属の vagina は前半部が管状で後半部が嚢状で bursa copulatrix を持たず，common oviduct は vagina の側壁に開口する sack-shaped vagina である．*Leptura* 属の vagina は管状で，common oviduct が vagina の先端部に開口する tubular vagina であるが，bursa copulatrix を持たない．雌生殖器のうち vagina の形態や bursa copulatrix の有無もしくは発達の程度はハナカミキリ亜科ばかりでなく他の亜科のカミキリムシの属や族の区別にも有効と考えられる．たとえば，ハナカミキリ亜科のうちカラカネハナのように著しく発達した bursa copulatrix を持つ種にクビアカドウガネハナ *Carilia atripennis*, クビアカハナ *C. aureopurpurea*, オトメクビアカハナ *C. otome*, キタクニハナ *Acmaeops marginata*, ヒナルリハナ *A. minuta*, トホシハナ *Evodinus interrogationis*, フタフブルリハナ *Stenocorus caeruleipennis*, カタキカタビロハナ *Pachyta lamed*, キベリカタビロハナ *P. erebia*, アラメハナ *Sachalinobia koltzei* などが掲げられる．このような大形の bursa copulatrix を持つ種はハナカミキリ亜科でもカタビロハナカミキリ族Stenocorini の多くの種にみられる（窪木，投稿中）．*Pidonia* 属の vagina の後半の拡張した嚢状部が bursa copulatrix に相同なものであって，*Pidonia* 属の vagina は2つのタイプの移行型とも考えられる．この点については今後の検討を必要とする．

② カミキリムシばかりでなく広く昆虫類は交尾してもただちに卵の授精は起こらない．精子はいったん雌の spermatheca に貯蔵され，成熟卵が卵巣から排卵された時，はじめて授精がおこる．そのため，雌には雄から受け取った精子を貯蔵する spermatheca が発達している．spermatheca は外胚葉起源で他の内部生殖器に較べて節片化が著しく，その種に特有の形態を持っている．*Leptura* 属の2種（Figs. 4–5）と *Pidonia* 属の2種（Figs. 2–3）とを較べても形態的な差は顕著である．KUBOKI（投稿中）は *Pidonia* 属のグルーピングにこの spermatheca を使用して亜属の再検討を行なっている．オオヒメハナは spermatheca の基部に蛇腹構造を持ち *Pidonia* 亜属の，チャイロヒメハナは spermatheca の基部付近に数個のくびれを持ち *Mumon* 亜属の特徴をそれぞれ表わしている．しかしながら，spermatheca の形態には個体変異，特に地理的変異が認められるので近縁種間の区別には有効でない場合もあるので，これらの点も考慮しなければならない．RASKE（1973）はフトカミキリ亜科の *Monochamus scutellatus* の spermatheca の彎曲の程度に地理的変異があることを指摘している．

③ カミキリムシの雌の外部生殖器の形態はTANNER（1927）により指摘されているように，stylus の形態や付着状態，valvifer の発達の程度は亜科を区別する標徴として使用できる．今回扱ったハナカミキリ5種は卵形体を持ち，valvifer が比較的よく発達するなどハナカミキリ亜科の特徴を表わしている．これらをさらに詳細に検討すると stylus の形態や coxite への付着状態は種によって明らかに異なっている．特に coxite の形態は顕著で *Pidonia*属のように前後節が不明瞭に分かれるものから，カラカネハナや *Leptura* 属のように前節が可動的に後節から明瞭に分かれるものまである．体長に対する産卵管は体の大形化に伴い長くなる傾向がある．特に valvifer の発達の程度は産卵管の長さと関連しており，それぞれの種の産卵習性と密接な関係があると考えられる．カミキリムシの産卵習性はフトカミキリ亜科にみられるよう

に雌が大腮で傷をつけて，そこに産下するグループもあるが，ハナカミキリ亜科を含む多くのカミキリムシは樹皮の傷口や割れ目，すき間などに産卵する（LINSLEY, 1961）．ハナカミキリの中でも大形のヨツスジハナやヤツボシハナのように樹皮の割れ目やすき間に産卵管を挿入して産卵するものは比較的産卵管が長く，これに伴い valvifer もよく発達している．一方，*Pidonia* 属の2種やカラカネハナのように産卵管を出し，樹皮のすき間や樹皮を被っているコケ類の間に産卵するものは比較的産卵管が短く，これに伴い valvifer もあまり発達していない．カミキリムシの産卵管の形態は産卵習性と密接な関係があると考えられる．

このように，従来ほとんど未調査のカミキリムシの雌交尾器は分類の標徴としてばかりでなく，交尾行動や産卵習性からも重要である．反転された雄の endophallus（窪木, 1980）と♀交尾器との間には形態的な一致が認められる．たとえば，カラカネハナでは，雄の endophallus の先端部と雌の bursa copulatrix の形態が一致する．ヨツスジハナやヤツボシハナの雄の endophallus の先端の flagellum すなわち節片化した射精管の先端部は雌の spermathecal duct 内に侵入する（Fig. 6）．これらの形態の一致は，いずれも♂の精子を確実に雌の spermatheca 内に送り込むのに貢献すると考えられる．

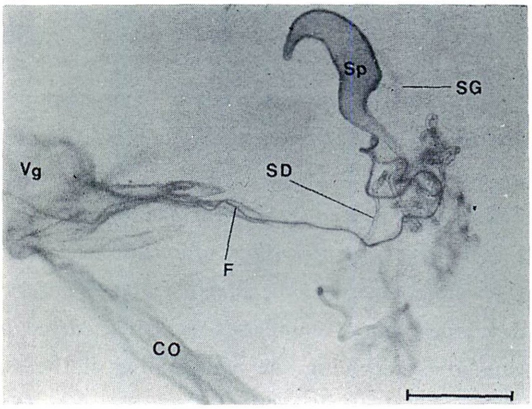


Fig. 6. Flagellum of the male inserted into the spermathecal duct of the female in *Leptura ochraceofasciata* (MOTSCHULSKY). Scale: line = 0.4 mm. Abbreviations: *Male*, F, flagellum. *Fmale*, CO, common oviduct; SD, spermathecal duct; SG, spermathecal gland; Sp, spermatheca; Vg, vagina.

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Summary

1. In the present study I have examined the female genitalia of 5 species, *Gaurotes doris* BATES (Fig. 1), *Pidonia debilis* (KRAATZ) (Fig. 2), *P. grallatrix* (BATES) (Fig. 3), *Leptura arcuata* PANZER (Fig. 4) and *L. ochraceofasciata* (MOTSCHULSKY) (Fig. 5), belonging to the cerambycid subfamily Lepturinae.

2. In *Gaurotes doris*, *Leptura arcuata* and *L. ochraceofasciata* having the tubular vagina, the common oviduct occurred near the anterior end of the vagina. *Gaurotes doris* had a well-developed bursa copulatrix which occurred near the anterior end of the vagina. The bursa copulatrix receiving the endophallus of the male genitalia during copulation coincided with the anterior part of the endophallus in shape. *Pidonia debilis* and *P. grallatrix* possessing the sack-shaped vagina were wanting in the separate bursa copulatrix. The common oviduct occurred the lateral side of the vagina.

3. The spermatheca possessed strongly sclerotized capsule and its shape varied from species to species. The spermatheca opened into the area where the common oviduct met near the anterior end of the vagina in *Leptura arcuata* and *L. ochraceofasciata* or the base of the bursa copulatrix in *Gaurotes doris.* The spermathecal duct opened the lateral side of the vagina in *Pidonia debilis* and *P. grallatrix*. *Leptura ochraceofasciata* had a very long spermathecal duct. The flagellum, sclerotized terminal prolongation of ducts ejaculatorius, of the anterior end of the endophallus was inserted into the spermathecal duct in order to inject the sperm into the spermatheca (Fig. 6).

4. The length of the ovipositor varied from species to species. The ovipositor was so modified as to perform various modes of oviposition. *Leptura arcuata* and *L. ochraceofasciata* deeply inserting their ovipositor into the cracks of the bark had a well extended one. *Pidonia debilis*, *P. grallatrix* and *Gaurotes doris* placing their eggs in the shallow cracks of the bark or in the moss growing over the bark possessed a short ovipositor.

ELYTRA, Vol. 9, No. 2—Nov. 1981
The Journal of
the Japanese Society of Coleopterology

A Note on the Genus *Procleomenes* GRESSITT et RONDON (Cerambycinae, Cerambycidae)

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Procleomenes 属について

新里　達也

Procleomenes is a small genus distributed in South-East Asia, hitherto contained only two species, *P. elongatithorax* from Laos and *P. bialbofasciatus* from West Malaysia respectively. Recently, however, I had a chance to examine five species of this genus collected in South-East Asia. Specimens from Thailand are identified *P. elongatithorax*. Specimens from West Malaysia consist of three species, namely, *P. bialbofasciatus*, and the other two are new to science. Taiwan's one is also new species.

All holotypes treated in this paper are deposited in the National Science Museum Tokyo, and paratypes are preserved by each collector.

Tribe Cleomenini LACORDAIRE, 1869

Genus *Procleomenes* GRESSITT et RONDON

Procleomenes GRESSITT & RONDON, 1970, Pacif. Ins. Monogr., **24**: 309 (type-species: *P. elongatithorax* G. & R., 1970)

Elongate and slender. Integument shiny, dark reddish brown to black, decorated with pale markings on elytra. Vertex more or less concave. Antennal middle segments each with several long erect hairs internally. Prothorax distinctly longer than broad, with a pair of lateral tubercles at basal 1/3, and with the other 5 tubercles on disc, the latter tubercles of which are traced just as the 5 pips on a die. Elytra narrowed near middle and then slightly broadend posteriorly, not reaching abdominal apex. Fore coxal cavities closed behind, and mid coxal cavities narrowly opened externally. Femora strongly pedunclate and clavate. Tegmen of male genitalia not divided into a pair of lobes.

Key to the species

1. Elytral apices emarginate or truncate, at least not completely rounded ············ 2
— Elytral apices completely rounded; elytral middle portion with a peculior dark brown X-shaped marking which is interrupted just behind crossing (West Malaysia) ············ *glabrescens* sp. nov.
2. Elytra with 2 or 3 light yellow bands ············ 3
— Elytra generally light yellow, with several pairs of dark brown spots and apical broad band; elytral apices weakly

emarginate (Taiwan) ···*robustius* sp. nov.

3. Frons distinctly broader than long; elytra with 3 light yellow bands ·· 4

— Frons a little broader than long; elytra with 2 light yellow bands; elytral apices narrowly truncate (West Malaysia)··*bialbofasciatus*

4. Elytra with 1st light yellow band almost reaching basal margin; elytral apices strongly emarginate; basal halves of fore femora pale yellow (Laos, Thailand) ···*elongatithorax*

— Elytra with 1st light yellow band distantly separated from basal margin; elytral apices weakly emarginate; basal halves of fore femora dark reddish brown (West Malaysia) ···*shimomurai* sp. nov.

Procleomenes elongatithorax **GRESSITT et RONDON**

Procleomenes elongatithorax GRESSITT & RONDON, 1970, Pacif. Ins. Monogr., **24**: 309, fig. 48-f.

Male genitalia: Median lobe about 1.9 times as long as tegmen; sides subparallel, weakly broadened at apical 2/7; apex rounded; basal orifice a little elongated. Apex of tegmen weakly emarginate, sparsely clothed with setae.

Female: Differs from male by the following points: body more or less broadened, relatively weakly punctate; antennae shorter, nearly as long as body; abdomen evenly and sparsely clothed with semilong hairs, with 5 th sternite roundly truncate at apex.

Materials examined: 1 ♂, Meo-Village, near Chiangmai, Thailand, 25 May 1978, K. & H. AKIYAMA leg.; 1 ♀, Doi-Sutep, near Chiangmai, 28 April 1980, K. KINUGASA leg.

Length: 7.4 mm (male), 7.8 mm (female)
Width: 1.2 mm (male), 1.5 mm (female)

Distribution: Laos (Vientian Prov.), Thailand (near Chiangmai).

Notes: Elytral color pattern of this species is similar to *P. shimomurai* sp. nov., distributed in West Malaysia, but the former species is easily distinguished from the latter by the following points: first elytral band pale yellow instead of blackish brown; elytral apices strongly emarginate; basal halves of femora pale yellow, etc.

The examined specimens are fairly larger than the typical one (male; L: 4.6 mm, W: 0.8 mm), but the other characters almost correspond to the original description.

This is the first record from Thailand.

Procleomenes bialbofasciatus **HAYASHI**

Procleomenes bialbofasciatus HAYASHI, 1979, Bull. Osaka Jonan Women's Jr. College, **13**: 32.

Male genitalia: Median lobe about 2 times as long as tegmen, flattened, weakly curved ventrally at apical 1/4; sides almost parallel, broadened at apical 1/4; apex rounded; basal orifice not elongated. Apex of tegmen sparsely clothed with short setae.

Female: Differs from male in external view by the following points: antennae shorter, barely reaching elytral apices at apical 1/3 of 9 th segments; abdomen dark yellowish brown instead of pitchy black, evenly clothed with semilong hairs, rounded at apex.

Materials examined: 2 ♂♂, Tanah-Rata, Cameron-Highlands, Pahang, Malaysia, 16 March 1976, T. SHIMOMURA leg.; 2 ♀♀, Fraser's-Hill, Pahang, 28 March 1977, T. MIZUNUMA leg.

Length: 4.7–5.1 mm (male), 5.3–6.6 mm (female)
Width: 0.9–1.1 mm (male), 1.1–1.3 mm (female)

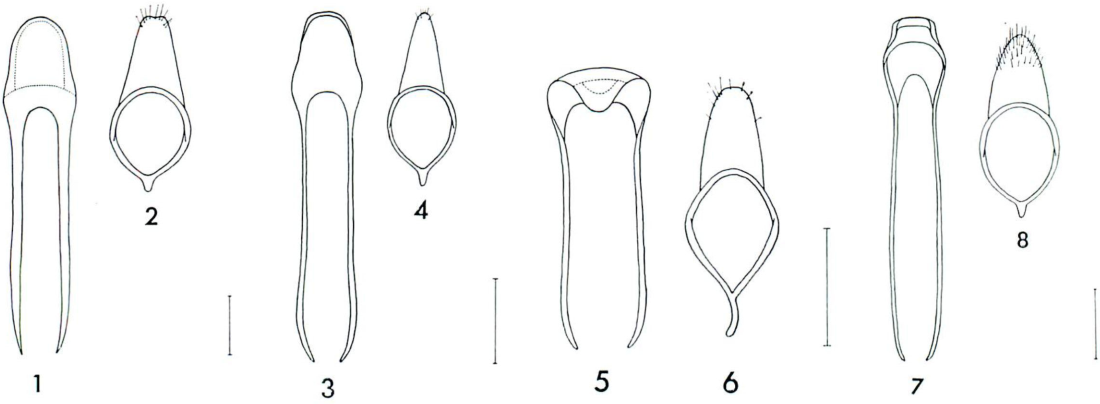
Distribution: West Malaysia (Cameron-Highlands, Fraser's-Hill).

Notes: This species somewhat resembles to *P. elongatithorax* GRESSITT et RONDON, but differs from the latter in having more rounded body, two pale bands on elytra instead of three, and almost rounded elytral aqices, etc.

***Procleomenes shimomurai* sp. nov.**

Male. Elongate, slender and relatively small. Body dark reddish brown to black; dorsal dark portions with faint metalic green tint. Head black, with mouth-parts excepting mandibular tips reddish brown. Antennae dark reddish brown, slightly more reddish on each base of middle segments. Prothorax black, with lateral tubercles and basal margin brownish. Scutellum dark reddish brown. Elytra translucent, largely blackish brown, with 3 light yellow semioblique transverse bands, 1st one near base, 2 nd one just before middle and another one just behind middle, these three bands almost reaching both of lateral and sutural lines. Meso and metathoraces, and abdomen dark reddish brown. Legs dark reddish brown, with basal halves of mid and hind femora, and basal 2 segments of hind tarsi pale yellow.

Head a little broader than prothorax; frons about 1.8 times as broad as long, with a median shallow groove; surface coarsely and sparsely punctate; each puncture bearing a semilong erect pale yellow hair, which is becoming long near mouth-parts and below eye-lobes but short on frons. Antennae reaching elytral apices at apices of 8 th segments, moderately clothed with pale yellow pubescence, with 2 nd to 6 th segments with several long erect dark reddish brown hairs internally (especially longer on apical parts of 3 rd and 4 th); scapes subconical, sparsely punctate; 2 nd impunctate, the remainder weakly and densely granulose-punctate; relative lengths of segments as follows: 1.9: 0.4: 1.1: 2.0: 2.6: 2.6: 2.5: 2.3: 2.1: 1.9: 1.9. Pronotum a little more than 2 times as long as wide; tubercles at sides and on disc relatively obtuse; surface coarsely and sparsely punctate; each puncture bearing a semilong erect pale yellow hair. Scutellum densely clothed with pale yellow pubescence. Elytra about 2.6 times as long as humeral width, reaching base of 4 th abdominal sternite; apices truncate, with external angles weakly dentiformed; disc ovally impressed at base near suture, coarsely, sparsely and weakly punctate; each puncture bearing a semilong erect pale yellow hair. Meso-and metathoraces, and abdomen smooth



Figs. 1–8. Male genitalia of *Procleomenes* spp.—1. *P. elongatithorax*, median lobe (dorsal view), 2. ditto, tegmen (dorsal view), 3. *P. bialbofasciatus*, median lobe (dorsal view), 4. ditto, tegmen (dorsal view), 5. *P. shimomurai* sp. nov., median lobe (ventral view), 6. ditto, tegmen (dorsal view), 7. *P. robustius* sp. nov., median lobe (dorsal view), 8. ditto, tegmen (dorsal view). Scale: 0.25 mm

and sparsely scattered with short pale yellow hairs, though mesothorax and basal part of metasternum densly covered with short pubescence, and also 4th and 5th abdominal sternites relatively densely with short hairs; 5th abdominal sternite transversely truncate at apex. Legs fairly densely clothed with semilong pale yellow hairs; tarsi densely pubescent.

Length: 3.8–4.6 mm width: 0.8–0.9 mm

Male genitalia: Median lobe relatively short, a little longer than tegmen, almost parallelsided on median struts, strongly turned to ventral side at apical part, narrowly and roundly truncate at apex; basal orifice not elongated. Apex of tegmen obtusely rounded, clothed with sparse short setae.

Female: Antennae a little shorter than in male, barely reaching elytral apices at middles of 9th segments; prosternum weakly punctate; 4th and 5th abdominal sternites not so hairly, roundly truncate at apex.

Length: 4.3–5.6 mm Width: 0.8–0.9 mm

Variation: Elytral pale bands often becoming broader or narrower, and the 3rd one sometimes disappeared.

Type-series. Holotype, ♂, Tanah-Rata, Cameron-Highands, Pahang, Malaysia, 16 March 1976, T. SHIMOMURA leg. Paratypes: same locality as the holotype: 2 ♀♀, 6–10 March 1976, W. SUZUKI leg.; 4 ♂♂ 1 ♀, 16 March 1976, T. SHIMOMURA leg., 3 ♂♂ 1 ♀, 19 March 1976, K. SAKAI & T. SHIMOMURA leg.

Notes: This new species is similar to *P. elongatithorax* GRESSITT et RONDON distributed

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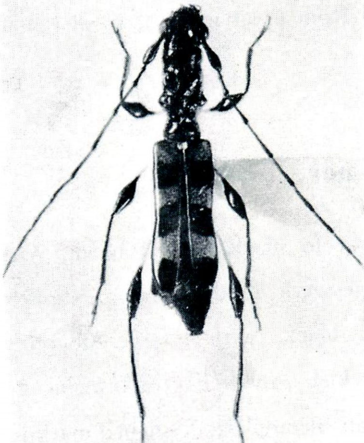
Explanation of p. 11: Figs. 9–17. *Procleomenes* spp. —9. *P. elongatithorax*, female; 10. *P. bialbofasciatus*, male; 11. ditto, female; 12. *P. shimomurai* sp. nov., male (holotype); 13. ditto, male (black form); 14. ditto, female; 15. *P. glabrescens* sp. nov., female (holotype); 16. *P. robustius* sp. nov., female (holotype); 17. ditto, male.



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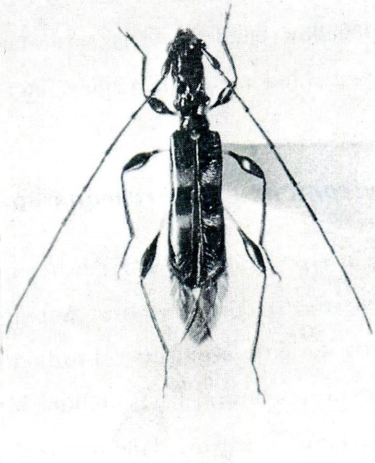

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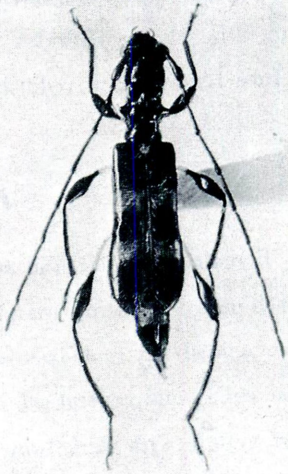

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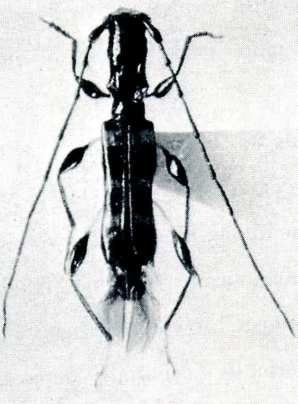

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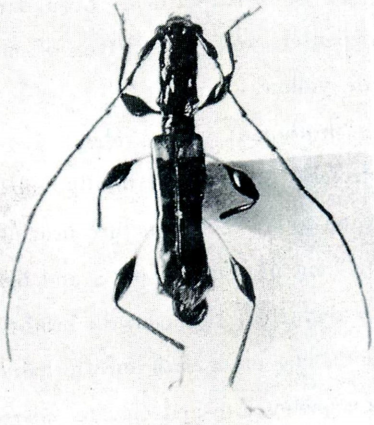

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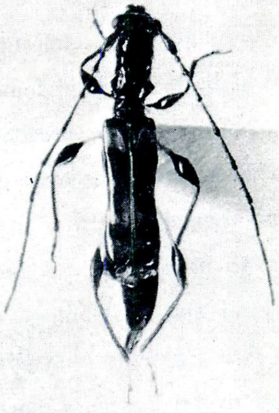

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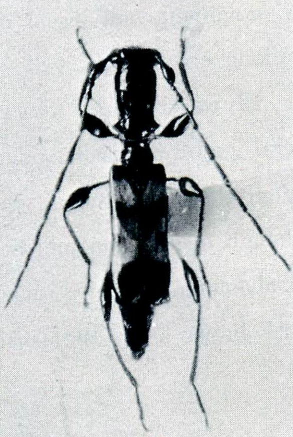

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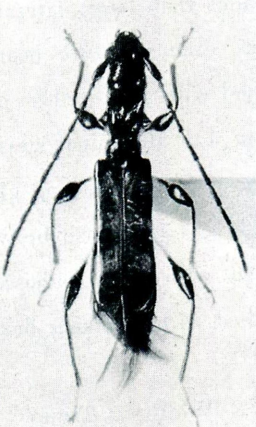

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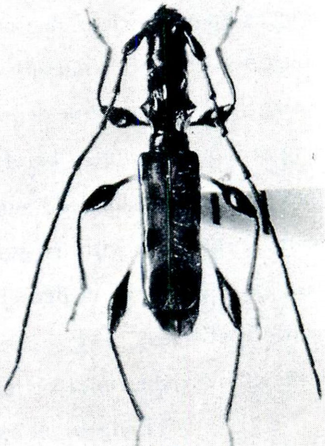

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in Laos and Thailand, but differs from the latter in having 1st antennal segments clearly shorter than 6 th, elytra with 1st light yellow band distantly separated from basal margin, basal halves of fore femora dark reddish brown, hind tarsi pale yellow, etc.

***Procleomenes glabrescens* sp. nov.**

Female. Slender and small in size. Body dark reddish brown to black. Head black, with mouth-parts excepting mandibular tips reddish brown. Antennae dark reddish brown, slightly more reddish on each base of 4 th to 6 th segments. Prothorax black, with lateral tubercles, basal collar and ventral sides more or less brownish. Scutellum blackish brown. Elytra translucent, light yellow with dark brown markings, a narrow band on base, an incomplete X-shaped marking from basal 1/4 to apical 1/3, the X-making is interrupted just behind crossing, and enlarged area on apical 1/4, and also lateral and sutural lines narrowly fringed. Meso-and metathoraces dark reddish brown, and abdomen dark yellowish brown. Legs dark reddish brown, with meso-and metacoxae, meso-and metatorochanters and basal halves of mid femora dark yellowish brown, basal halves of hind femora pale yellow.

Head a little broader than prothorax; frons about 1.4 times as broad as long, with a median shallow groove; eyes strongly prominent laterally; surface very sparsely punctate, closely and coarsely on frons, rugosely on gula; each puncture bearing a semilong erect bright yellowish brown hairs, which is becoming long near mouth-parts and below eyelobes. Antennae reaching elytral apices at apices of 10 th segments, clothed with bright yellowish brown pubescence, 2 nd to 6 th segments each with 1 or 2 long erect dark brown hairs internally (especially longer on 3 rd to 5 th); scapes more or less pedunclate and clavate, coarsely punctate on basal halves; 2 nd segments impunctate, the remainder weakly granulose-punctate; relative lengths of segments as follows: 2.4: 0.4: 0.9: 1.9: 2.0: 1.8: 1.7: 1.1: 1.3: 1.2: 1.4. Pronotum about 2 times as long as apex which is distinctly broader than base; lateral tubercles prominent and discal ones indistinct; surface coarsely punctate; each puncture bearing a semilong erect bright yellowish brown hair. Scutellum densely clothed with pale yellow pubescence. Elytra about 2.7 times as long as humeral width, barely reaching 4 th abdominal sternite; humeral angles somewhat ridged; apex separately rounded; surface almost impunctate and glabrous. Ventral surface smooth, very sparsely scattered with irregular-sized bright yellowish brown hairs, though mesothorax and basal part of metasternum densely covered with short pubescence; 5 th abdominal sternite roundly truncate at apex. Legs sparsely clothed with semilong bright yellowish brown hairs, and densely with yellow pubescence on tarsi.

Length: 4.7 mm Width: 0.85 mm

Holotype, ♀, Fraser's-Hill, Pahang, Malaysia, 28 March 1977, T. MIZUNUMA leg.

Notes: This new species resembles to *P. shimomurai* sp. nov. at first signt, but differs from the latter in having a peculiar X-shaped dark marking on elytra, completely rounded elytral apices, dark yellowish brown abdomen and mid femora, etc.

Procleomenes robustius **sp. nov.**

Procleomenes sp.: J. ITO, 1979, Gekkan-Mushi, (96): 23, fig. 7.

Female. Relatively robust and moderate in size. Body dark reddish brown to black with faint metalic green tint. Head black, with mouth-parts excepting mandibular tips reddish brown. Antennae dark reddish brown, 2 nd and basal 2/3 of 3 rd segments more reddish. Prothorax black, with lateral tubercles and basal margin slightly brownish. Scutellum dark reddish brown. Elytra translucent, light yellow; each elytron with dark brown to dark yellowish brown markings as following manner: 1) a humeral spot invated along epipleuron; 2) 2 oblong spots on basal 1/3, the external one of which is arrived to lateral margin; 3) a transverse incomplete band at apical 1/3, which is not reaching sutural line; 4) enlarged area on apical 1/4; 5) narrow fringes on base, and laterals and sutural lines. Ventral sides dark reddish brown. Legs dark reddish brown; basal halves of mid and hind femora pale yellow; every tarsi yellowish brown.

Head narrower than prothorax; frons about 1.3 times as broad as long, with a median shallow groove; surface coarsely and irregularly punctate, very sparsely on neck, densely and rugosely on frons; each puncture bearing a semilong erect pale yellow hair, which is becoming long near mouth-parts and below eyelobes but short on frons. Antennae barely reaching apical 1/4 of elytra, moderately clothed with pale yellow pubescence excepting 1st and 2 nd segments which are clothed with sparse semilong erect hairs, and also with 3 rd to 8 th segments scattered with several long erect reddish brown hairs (especially longer on each apical part of 3 rd to 5 th); scapes semi-spindleshaped, coarsely and somewhat densely punctate; 2 nd segments sparsely punctate, the remainder weakly and densely granulose-punctate; relative lengths of segments as follows: 2.5: 0.7: 1.9: 2.1: 2.6: 2.1: 1.9: 1.9: 1.6: 1.6: 1.6. Pronotum about 2 times as long as apex, which is nearly as wide as base; lateral tubercles obtusely pointed, but discal ones are indistinct; surface coarsely and irregularly punctate; each puncture bearing a semilong erect pale yellow heir. Scutellum densely clothed with pale yellow pubescence. Elytra about 2.6 times as long as humeral width, reaching last abdominal sternite; apex weakly emarginate; disc triangularly impressed at base near suture, coarsely and sparsely punctate; each puncture bearing a semilong erect pale yellow hair. Ventral surface smooth, and sparsely scattered with semilong pale yellow hairs, though mesothorax and basal part of metasternum are densely clothed with short pubescence; apex of abdomen roundly truncate. Legs fairly densely clothed with pale yellow hairs; tarsi densely with yellow pubescence.

Length: 5.2–8.0 mm　　Width: 1.1–1.5 mm

Male: Color more blackish in general. Antennae longer than in female, about 1.2 times as long as body. Abdomen blackish brown to black, excepting yellowish brown 5 th sternite; surface clothed with sparse semilong hairs, though 4 th and 5 th sternites are rather densely clothed; apex transversely truncate.

Length: 5.0–6.9 mm　　Width: 1.0–1.2 mm

Male genitalia: Median lobe a little less than 2 times as long as tegmen; sides subparallel on median struts, weakly constricted just behind apex; apex transversely truncate; basal orifice a little elongated. Tegmen plump; apex obtusely projected, relativelly densely clothed with setae.

Type-series. Holotype, ♀, Lienhwachih, Yuchih, Nantou Hsien, Taiwan, 15 March 1980, T. NIISATO leg. Paratypes: same locality as the holotype: 1 ♀, 17 March 1978, J. ITO leg.; 2♀♀, 14–16 March 1980, T. SHIMOMURA leg.; 1♂ 1♀, 20–23 March 1980, S. INOKAWA leg.; 1♂, 24 March 1981, K. IKEDA leg.

Notes: This new species somewhat resembles to *P. elongatithorax* GRESSITT et RONDON, but differs from the latter in having largely light yellow elytra lacking bands, almost yellow tarsi, etc.

Acknowledgement

I wish to express my hearty thanks to Prof. Dr. Keiichi KUSAMA of Shizuoka University, and Messrs. Jiro KOMIYA and Masatoshi TAKAKUWA for their kind help in preparing the manuscript of this paper. Thanks are also due to Drs. K. KINUGASA and K. IKEDA, and Messrs. K.& H. AKIYAMA, J. ITO, S. INOKAWA, K. SAKAI, W. SUZUKI and T. SHIMOMURA for their kindness in supplying with valuable materiales used in this study, to Mr. A. ISHIKAWA for preparing part of genitalic drawing, and to Mr. H. MATSUKA for taking photographs inserted in this paper.

摘　　要

*Procleomenes*属はこれまでラオスから記載された本属の模式種である *P. elongatithorax* 並びに西マレーシアから最近発見された *P. bialbofasciatus* の2種が知られているに過ぎなかったが，今回台湾，タイ，西マレーシアの各地域で採集された若干の本属の標本を検する機会に恵まれ，上記2既知種に3新種を加えた計5種を確認することができた。本属5種は次のようである．

1）*P. elongatithorax* GRESSITT et RONDON 本属の模式種．♀の記録は今回が初めてであり，またタイからは初記録である．分布：ラオス，タイ．

2）*P. bialbofasciatus* HAYASHI ♀は初記録．分布：マレーシア（西部）．

3）*P. shimomurai* NIISATO, sp. nov. 新種．分布：マレーシア（西部）．

4）*P. glabrescens* NIISATO, sp. nov. 新種．分布：マレーシア（西部）．

5）*P. robustius* NIISATO, sp. nov. 新種．分布：台湾．

ELYTRA, Vol. 9, No. 2—Nov. 1981
The Journal of
the Japanese Society of Coleopterology

Description of a New Species of Genus *Aphodius* (*Agrilinus*) ILLIGER from Japan

by Kimio MASUMOTO

Kamigō-chō 890-30, Totsuka-ku, Yokohama City, Kanagawa Pref. 247.

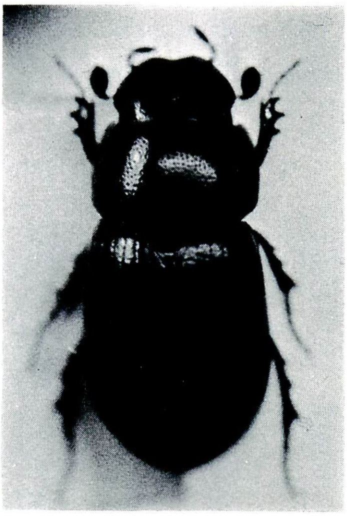
日本産 *Aphodius* 属 1 新種

益本 仁雄

Aphodius (*Agrilinus*) *tanakai* sp. nov.

Blackish brown; outer margin of head, front angles and narrow side margins of pronotum, underside of fore body, legs, etc., reddish brown, elytra dark reddish brown (humeral portions, sutural portion and apical portion often more reddish), mouth organs and funicles of antennae yellowish brown; upper surface strongly shining. Oblong ovoid and robust; strongly convex above.

Head moderately convex, rather closely and finely punctate, rugose in anterior portion, sparsely and finely punctate and microscopically shagreened in area between frontal suture and transverse carina in center front; front margin weakly emarginate in middle, moderately rounded and feebly reflexed on both sides; lateral margins obique and also reflexed; anterior carina low, slightly arched forward and wrinkled, rather steeply sloping in front to front margin; frontal suture fine with 3 tubercles, middle one of these most remarkable and subconical, other lateral ones transverse; genae moderately roundly produced laterally.



Aphodius (*Agrilinus*) *tanakai* sp. nov. (holotype)

Pronotum about 1.3 times as broad as long, broadest at base, straightly feebly narrowed in basal 3/5, then roundly narrowed to front; front border feebly arched forward; basal border weakly bisinuate on both sides, finely margined; lateral margins finely margined; front angles narrowly rounded; hind angles obtusely rounded; disc strongly convex, moderately closely and rather finely punctate, punctures subequal in size to each other and also to those on head and distance between them about 1–2 times their diameter, those in lateral portions closer and a little coarser, with narrow median impunctate area posteriorly. Scutellum triangular, closely and finely punctate in basal half, smooth in apical.

Elytra a little less than 1.4 times as long as broad, a little narrower than pronotum at base, gradually widened from base to middle, broadest at basal 4/7, then roundly narrowed to apex; dorsum strongly convex; disc finely striate, strial punctures small but clearly notching intervals; intervals nearly flat, with 2-3 rows of very fine punctures, sutural intervals feebly raised; humeral teeth very small but pointed.

Metasternum broadly flattened with median groove, smooth, sparsely and finely punctate in middle, more sparsely so on both sides, coriaceous in lateral portions. Abdomen shagreened, sparsely haired in lateral and apical portions, sparsely and obsoletely punctate on anal sternite.

Tibiae of fore legs bearing 3 distinct, sharp and subequidistant outer teeth, terminal spur moderately bent down- and outward and acutely pointed. First joint of hind tarsi slightly longer than 3 following joints combined and a little longer than upper terminal spur.

Aedeagus short but bold, feebly bent at apex.

Female: Head fairly evenly finely punctate, front margin a little angulate on both sides; tubercles on frontal suture less developed, with middle one growing forward. Pronotum comparatively narrow, a little more closely and irregularly punctate. Protibial spur longer but less strongly bent.

Body length: 4.0-4.8 mm.

Holotype: ♂ Nikko, Tochigi Pref., Japan, 24 V 1981, K. MASUMOTO leg., paratypes: 15 exs., ditto, 18 V 1981, H. TANAKA leg.; 7 exs., ditto, 23 V 1981, 3 exs., ditto, 24 V 1981, K. MASUMOTO leg.

This new species is allied to *Aphodius* (*Agrilinus*) *ursinus* MOTSCHULSKY, but it is differentiated from the latter in having a smaller, more strongly shining body, a head with front margin more rounded on both sides, pronotal punctures subequal in size to each other in male, humeral teeth small but constantly armed in each individual, and an aedeagus smaller and less largely and strongly bent at apex.

The new species is named after Mr. Hitoshi TANAKA who is the first collecter of this new species.

After kindly examining one of the paratypes, Dr. T. NAKANE informed me that he is in agreement that this species is new to science.

ELYTRA, Vol. 9, No. 2—Nov. 1981
The Journal of
the Japanese Society of Coleopterology

カミキリムシ科の交尾器 endophallus について

II. *Pidonia* 属 *insuturata* 群の endophallus

窪木　幹夫

Notes on the endophallus in some longicorn beetles (Coleoptera: Cerambycidae)

II. Endophallus of *Pidonia insuturata* group

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前報（窪木，1980）ではハナカミキリ亜科の５種の endophallus の形態を報告し，endophallus の分類学的価値について検討した．本報告ではハナカミキリ亜科の *Pidonia* 属の近縁種３種，ヨコモンヒメハナカミキリ *P. insuturata*，ムネアカヨコモンヒメハナカミキリ *P. masakii*，ニセヨコモンヒメハナカミキリ *P. simillima* の endophallus の形態を調べ，その表面にみられる付属物 armature を比較し，その分類学的価値と機能について検討した．

材料と方法

研究に用いたヒメハナカミキリは，1977年７月５日～10日，長野県南安曇郡安曇村島々谷の岩魚止小屋付近（標高1,200m）で採集し，75％アルコール中に保存したものである．

各個体から腹部が取り外され，水酸化カリウム７％溶液で加熱処理された．実体顕微鏡下で解体され，median lobe が取り出され，endophallus が反転され，Eosin で染色された．

結　　果

1. *Pidonia insuturata* PIC

ヨコモンヒメハナカミキリ（Fig. 1）

調査個体：５♀♀

体長7.4～8.2mm．endophallus は median lobe の実長（1.6mm）と等長かやや長く，細く，真直ぐ延びる．falcata sclerite は腹面側方に位置する．falcata sclerite の湾曲の内側のやや節片化した突出部はほとんど着色していない．median lobe の先端と falcate sclerite 間の腹質部は短く，腹面と背面が脹らむ．endophallus の中央部は腹面と背面が密な微小毛で覆われる．falcate sclerite 前方の側部腹面よりに対の釣針型の節片化した突出部を持つ．先端の膜質部は２，３の葉片状の突出部を持ち，背面には節片化した小片を備え，先端には１対の角状突起を持つ．角は三角形を呈し，先端は鈍く尖る．反転した結果 endophallus の内側になった diverticulum は長く，falcate sclerite 付近に達する．

2. *Pidonia masakii* TAMANUKI

ムネアカヨコモンヒメハナカミキリ（Fig. 2）

調査個体：５♀♀

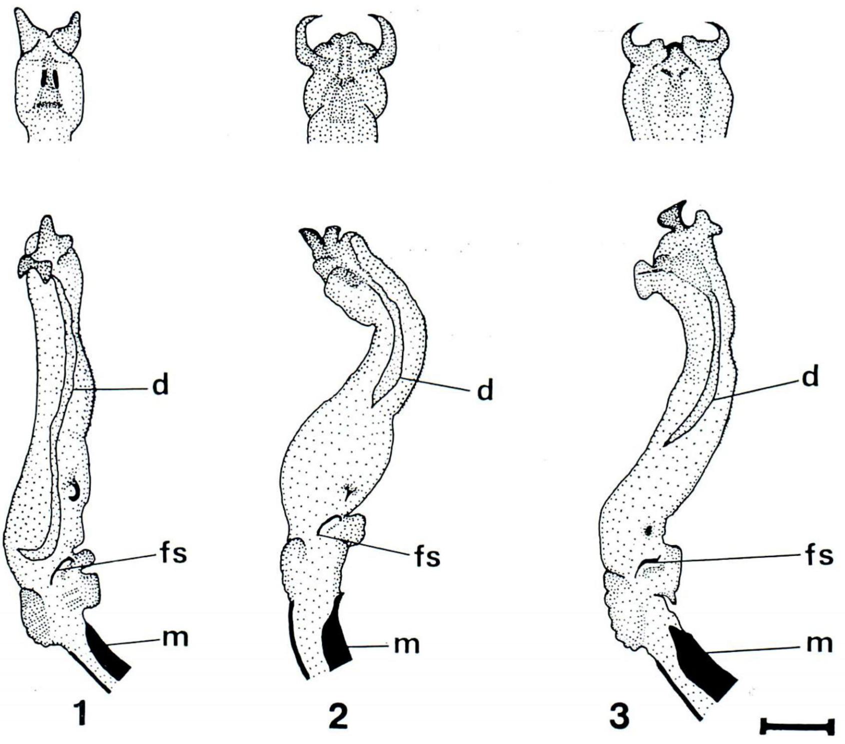
体長7.5～8.0mm．endophallus は median lobe（実長1.4mm）の約1.2倍で，やや太く，中央やや前方で強く湾曲する．falcate sclerite は腹面側方に位置する．falcate sclerite の湾曲の内側のやや節片化した突出部はほとんど着色していない．median lobe の先端と falcate sclerite 間の膜質部は短く，背面と falcate sclerite 付近に膨大部を持つ．endophallus の中央部は太く，脹み，腹面と背面が密な微小毛で覆われる．falcate sclerite 前方の側部腹面よりに１対の小刺状の節片化した突出部を持つ．先端の膜質部は２，３の葉片状の突出部を持ち，背面には節片化した小片を備え，先端には１対の角状突起を持つ．角は内側に屈曲し，先端は鋭く尖り内側を向く．反転した結果 endophallus の内側になった diverticulum はやや短く，endophallus の中央付近に達する．

3. *Pidonia simillima* OHBAYASHI et HAYASHI

ニセヨコモンヒメハナカミキリ（Fig. 3）

調査個体：３♀♀

体長7.3～7.6mm．endophallus は median lobe（実長



Figs. 1–3. The endophallus fully everted. Top showing the face of the transfer apparatus.
1. *Pidonia insuturata* Pic 2. *P. masakii* Tamanuki 3. *P. simillima* Ohbayashi et Hayashi. d, diverticulum; fs, falcate sclerite; m, median lobe. Scale: 0.3mm.

1.3mm）の約1.4倍で，やや細く，中央部で湾曲する．falcate sclerite は腹面側方に位置する．falcate sclerite の湾曲の内側のやや節片化した突出部はほとんど着色していない．median lobe の先端と falcate sclerite 間の膜質部は短く，背面と腹面に膨大部を持つ．endophallus の中央部は細く，腹面と背面に密な微小毛を持つ．falcate sclerite 前方の側部腹面よりに1対の節片化した着色部を持つ．この着色部は*masakii* の小刺状，*insuturata* の釣針型の突出部とほぼ同じ位置である．先端の膜質部は2，3の葉片状の突出部を持ち，背面には節片化した小片を備え，先端には1対の角状突起を持つ．角は内側に湾曲し，先端は鋭く尖り内側を向く．反転した結果 endophallus の内側になった diverticulum は *masakii* よりやや長く，endophallus の中央部に達する．

考察

節片化した pennis はその内側に主に膜質からなる endophallus を持っている．交尾の際，雌交尾器の vagina もしくは bursa copulatrix 内に挿入されるのは，この endophallus であり，これが事実上の挿入器である（窪木，1981）．反転された endophallus の表面には，この falcate sclerite 以外に毛，微小毛，小刺，小瘤起，角などが認められる．

falcate sclerite 前方の節片化した部分は，*insuturata* 群において様々な形態を呈するが，その位置から判定して，相同と考えられる．最も発達した *insuturata* では強く節片化し釣針型を呈し（Fig. 1），*masakii* では曲らず小刺状を呈し（Fig. 2），*simillima* では膜質部が着色するだけで瘤起部は認められない（Fig. 3）．endophallus の先端の1対の角状突起の形態もそれぞれの種に特徴ある形態を持っていた．ただし，falcate sclerite 前方の節片化部とは逆に *simillima* の方が発達し，より強く湾曲し先端は鋭く尖る傾向が認められた．

endophallus は薄い膜質で乳白色かほとんど透明である．この膜質は場所によって，その厚さ，硬さが異なるために，充分に拡げられ脹らんだ endophallus は膜質と言えども，一定の形を呈する．そして，その形態は armature と同様にその種に特有であり，種内においても安定した形質である．このように反転された endophallus の形態やその表面の armature は近縁種の区別にも有効

である事から，これらの形態は種を認識する形質の１つとみなすことができる．分類学的には種や属など比較的低い taxon の認識に有効である．

endophallus の表面にみられる種々の armature はどのような機能を持っているのであろうか．falcate sclerite はその湾曲の内側に節片化した突出部を持ち，その突出部と falcate sclerite の間に雌交尾器の一部をはさみ込む働きを持つと考えられる（窪木，1980）．falcate sclerite 前方の突出部も同様で，特に *insuturata* では釣針型の構造が雌交尾器の一部をひっかける働きをすると思われる．endophallus の中央部に見られる多数の微少毛は基部方向に傾めに着生しており，vagina 内に挿入された endophallus が外れにくくするように働くものと思われる．

交尾の目的は雄の精子を spermatheca や bursa copulatrix 内に送り込むことである．このために雄は雌の動きを拘束する必要がある．雄と雌が出合って，雄が同種の雌と認知すると，次に雄は雌にマウントする．雄の脚はこの拘束に最も重要な働きをする．雄が前，中脚だけを用いる種と後脚も使用する種がある．マルガタハナカミキリ *Judolia cometes*（Bates）では雄が雌の触角を大腮でくわえて，雌の動きを制している．このような例はヨーロッパ産の同属の *J. cerambyciformis* や *Srtangalia quadrifasciata* でも報告されている（Michelsen, 1963）．このように雄が雌にマウントした交尾姿勢をとるカミキリムシでは主に脚が重要な固定機能を果している．鱗翅目のように雄と雌が交接時にマウントせず，頭部がそれぞれ逆に向いて交尾する形式では腹背板が変形した把握器が結合に重要な役割を演じている（Klots, 1970）．カミキリムシではこのような変形は認められない．カミキリムシにおいては，雄による雌の固定は主に脚によって成し遂げられ，endophallus の armature も固定の機能を果すが，挿入時の endophallus の方向を一定にする働きがより重要と考えられる．armature が vagina 内で正しく方向付けされて射精口から精子が放出されれば，確実に精子の受け渡しが行なわれる事になる．

花上で行なわれているハナカミキリ類の交尾を観察していると，たとえ雌雄が交接状態になっていても，他個体（同一花上のすべての訪花生物）の干渉，妨害により，雌雄がすぐに離れてしまうものと，なかなか離れないで交接を続けるものとがある．前者の例としては *Pidonia* 属，後者の例としては *Leptura* 属のヨツスジハナカミキリ *L. ochraceofasciata* が代表的である．ヨツスジハナカミキリの交接状態は雄の endophallus の先端の flagellum が雌の長い spermathecal duct の奥深く挿入される（窪木，1981）ので，離れにくくなるものと思われる．ヨツスジハナカミキリのように，endophallus の先端に flagellum を持ち，それが spermatheca 付近まで到達して精子を確実に送り込むカミキリムシでは endophallus に armature は少ない．一方，flagellum を持たない *Pidonia* 属のようなカミキリムシでは逆に armature がよく発達する．endophallus が雌の vagina 内に挿入された時，armature が働いて射精口の方向付けを行ない，確実に精子を目的の場所に送り込むものと考えられる．*Pidonia* 属においては，endophallus 先端の角状突起がこの方向付けの最終段階で重要な働きをすると考えられる．

endophallus の種々の armature はカミキリムシ自身の種の認知に役立っているのであろうか．ハナカミキリにとって花は摂食の場であるとともに交尾の場でもある．それゆえ，多種類のハナカミキリが同一花上で同時に摂食，交尾を行なうことになるが，異種間交尾は極めて稀である．交尾は一連の行動を通して段階的に進行するもので，最初の引き金がひかれると動作は順序どうりに逆み，どの段階が欠けても交尾は成立しない．たとえ，ある種の雄が異種の雌の自由を奪ってマウントに成功しても，実際の交尾器の挿入や交接までは至らず，雌が後脚を使用して雄を背中から追い落としたり，上翅を拡げて雄の脚をはずしたりして，交尾を拒否するので，実際の交尾は行なわれない．種の認知は armature の構造とは無関係であり，それが機能する以前に行なわれるものである．

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Summary

1. The endophallus of the male genital organ in 3 close relatives, *Pidonia insuturata* PIC, *P. masakii* TAMANUKI and *P. simillima* OHBAYASHI et HAYASHI belonging to the cerambycid subfamily Lepturinae was examined.
2. The everted endophallus, the intromitten organ, was furnished with the sclerotized armature. The function of the armature was discussed. The armature was concerned with guiding the opening of the ejaculatory duct to the spermatheca or bursa copulatrix of the female in order to transfer sperm safely.
3. The taxonomic significance of the endophallus was discussed. The shape of the endophallus and the armature upon it was valued in low categories such as genus and species.

ELYTRA, Vol. 9, No. 2—Nov. 1981
The Journal of
Japanese Socity of Coleopterology

台湾産ゴミムシダマシ科解説〔Ⅲ〕

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Tenebrionidae of Formosa (3) by Kimio MASUMOTO

Tribe Misolampini

***Paramisolampidius alishanus* sp. nov.**

Black; antennae (except 4 apical joints), tarsi, claws, mouth organs, gena, gula, etc., blackish brown, 4 apical joints of antennae dark reddish brown; upper surface feebly sericeously shining, undersurface moderately shining. Strongly convex above but feebly flattened; elongate gourd-shape.

Head subquadrate, flattened and continuously sloping from vertex of front margin, irregularly punctate; frons rather sparsely punctate in front; fronto-clypeal border deeply sulcate and U-shaped, reaching outer margin; clypeus rather finely punctate, punctures smaller and closer anteriorly, front margin straight with both sides short and oblique; preocular areas weakly raised, with outer margins oblique in anterior half and subparallel in rest, rather closely and finely punctate; eyes medium-sized, oblique; interocular space about 3 times eye diameter, with shallow median impression; ocular sulcus deeply but not very widely grooved; antennae fairly slender, nearly reaching base of pronotum, 8 th joint to 10th distinctly dilated to apex, 11th ovoid, relative length of each joint (base to apex): 3.5, 2.0, 5.5, 3.5, 3.0, 3.5, 3.0, 3.5, 2.8, 3.0, 4.5.

Pronotum somewhat barrel-shaped, nearly as broad as long (31.5 : 33.5), broadest a little after middle, very feebly sinuate before base; front border very slightly produced, finely margined but margin interrupted in median half; basal border also very slightly produced, margined by deep, narrow, bisinuate sulcus; disc convex but moderately flattened, rather closely and irregularly punctate, punctures slightly larger than those on head, with long shallow median groove and distinct comma-shaped impression at a little beyond middle on both sides. Scutellum broadly triangular, slightly depressed, sparsely and finely punctate.

Elytra oblong ovoid, about 1.7 times as long as broad, gradually widened from base, broadest at basal 3/5, then roundly narrowed to apex, rather distinctly produced in apical portion; dorsum strongly convex but softly flattened, feebly depressed in anterior-middle, strongly declined laterally, thus outer portions from 7th stria invisible in dorsal view; disc moderately punctate-striate, punctures small; intervals rather strongly convex, transversely wrinkled, reticulate and microscopically (about x20) setaceous; sides moderately enveloping hind body.

Mentum trapezoid with small but sharp projection; gula relatively large and parabolic, smooth; terminal joint of each maxillary palpus securiform, with widely arcuate outer side adout 1.8 times length of inner and 1.5 times length of apical, inner corner subrectangular.

Prosternum rather closely and finely punctate, strongly raised in intercoxal space, feebly depressed and bisulcate medianly, with prosternal process tongue-shaped and depressed, finely punctate; mesosternum with hind border moderately raised in V-shape, finely punctate; metasternum rather closely but shallowly punctate, weakly convex on both sides. Abdomen rather closely and finely, microscopically, setaceously punctate, longitudinally and shallowly wrinkled on 3 anterior sternites, more closely and finely punctate in each posterior portion of 2 apical sternites, with anal sternite shortly truncate at apex.

Legs rather closely and minutely punctate; protrochanters each with small but sharp projection; fore femora slender in basal 1/4, then rather strongly thickend, thickest at apical 1/3, middle femora slender in basal 2/5, then rather strongly thickened, thickest at apical 1/3, hind femora long, slender in basal half, also thickened and thickest at apical 2/7; tibiae slender, very feebly thickened to apex, fore and middle tibiae curved inward, each with short tooth inside at apex, hind tibiae arcuate in basal 1/3, then nearly straight to tip; tarsi relatively long, relative length of each joint of fore, middle and hind tarsi from base to apex as follows: 3.5, 2.6, 2.4, 2.2, 7.5; 5.0, 3.0, 2.7, 2.3, 7.0; 8.0, 4.0, 3.0, 8.5; claws sharp.

Body length: 14-16mm.

Holotype: ♂ Alishan, Chiayi Hsien, 25 Ⅵ 1981, K. MASUMOTO leg., paratypes: 2 exs., ditto.

This new species is distinguishable from *Paramisolampidius shirozui* M. T. CHÛJÔ from Formosa by its larger, more elongated body, distinct comma-shaped impressions on the pronotum, clearly convex transversely wrinkled, reticulate and microscopically setaceous elytral intervals, and elongate aedeagus.

Paramisolampidius wufengus **sp. nov.**

This new species also resembles *Paramisolampidius shirozui* M. T. CHÛJÔ from Formosa, but differs from the nominate species in the following characteristics:

Body smaller and shorter; more strongly convex above.

Head more closely punctate, with shallow median groove anteriorly; fronto-clypeal border semicircularly sulcate; genae with outer margins more obligue in anterior half and otherwise more shortly subparallel; clypeus clealy shorter; antennae more slender with relative length of each joint (base to apex): 3.5, 1.5, 4.5, 3.5, 3.2, 3.2, 3.2, 3.0, 2.8, 2.5, 3.6.

Pronotum more transverse, barrel-shaped (breadth : length=25.5 : 26.0), more closely punctate, with shallow median groove and shallow impression on both sides.

Elytra oval (length : breadth=58.0 : 37.0); dorsum strongly convex, thickest at middle; disc punctate-striate, striae very fine, scutellary strioles shorter; intervals nearly flat, smooth or feebly reticulate; sides more largely enveloping hind body.

Prosternum margined in front; punctate but not wrinkled.

Legs comparatively short; femora more strongly thickened; tibiae much less thickened in apical half; tarsi with relative length of each joint (base to apex): 3.0, 2.0, 1.8, 1.5, 5.5; 3.8, 2.2, 2.0, 1.8, 5.5; 6.2, 2.8, 2.6, 5.8, respectively.

Aedeagus distinctly slender.

Body length: 13-14 mm.

Holotype: ♂ Fenchihu, Chiayi Hsien, Formosa, 26 Ⅵ 1981, K. MASUMOTO leg., paratypes: 2 exs., ditto.

Tribe Cnodalonini

***Hemicera fukudai* sp. nov.**

Blackish brown; outer margins of pronotum, antennae, greater part of undersuface, etc., lighter in color; elytra (except punctate-striae and outer margins) with coppery or brassy luster, other portions with greenish luster; strongly shining. Oblong and fairly narrowed in humeral portions; rather strongly convex.

Head transverse and obliquely declined; moderately convex forward, fairly cosely and minutely punctate; frontal suture sublinear and fine, obsolete at median, reaching anterior portion of ocular sulcus but barely reaching outer margin; clypeus broadly transverse, more closely punctate than frons in posterior half, with smooth membranous anterior half short and about 1/2 width of posterior half; labrum oblong, with posterior half finely punctate and pubescent, divided from smooth anterior half by larger punctures in transverse row; genae wide but short, closely and minutely punctate like clypeus, weakly raised, with outer margins obliquely arcuate; eyes very large and transverse, narrowly produced laterally, distance between them about 1.3 times as wide as their diameter; ocular sulcus distinct; antennae medium-sized, nearly reaching base of elytra, 6 apical joints flattened and somewhat club-like, 6th to 10th dilated to apex, 11th ovoid, relative length of each joint (base to apex): 2.0, 0.8, 1.6, 0.9, 0.9, 1.2, 1.2, 1.3, 1.3, 1.5, 1.8.

Pronotum transverse (17.5 : 12.0), broadest just before middle, roundly narrowed to front, sublinearly and gently narrowed to base; front border feebly produced, finely margined but margin interruped at median 1/4; basal border bisinuate, shortly truncate opposite scutellum; sides narrowly explanate and distinctly margined, margin gently widened to posterior portion; front angles rounded; hind angles acute; disc rather strongly convex, especially so in anterior portion, obliquely and faintly impressed at base on both sides, rather closely but shallowly punctate throughout, microscopically shagreened. Scutellum subcordate, smooth.

Elytra about 1.6 times as long as broad, gradually widened from base to middle, then roundly narrowed to apex; dorsum strongly convex, thickest just before middle; disc finely puntate-striate, punctures very small, distance between them about 1.5–3 times their diameter 4 th and 5 th striae deepened near base; intervals nearly flat, scattered with very minute punctures; humeral corners angulate and slightly protruded; sides weakly expanded obliquely downward, margined and reflexed.

Mentum subcordate, raised medianly, sparsely pubescent; gula narrow and triangular, nearly smooth; terminal joint of each maxillary palpus fairly large, with arcuate outer side about 1.8 times length of inner and 1.2 times length of apical.

Prosternum fairly short, front border finely reflexed, with fusiform elevation from front border through intercoxal space to hind border, elevation rimmed and pointed both in front and at rear (prosternal process); mesosternum short with V-shaped elevation along hind border; metasternum long, shallowly wrinkled throughout, shallowly and finely punctate in middle. Abdomen with 3 anterior sternites shallowly wrinkled, 2 apical ones smooth.

Legs finely and setaceously punctate; femora moderately thickened; tibiae weakly thickened to apex, haired on inner side of apical half, fore tibiae short and nearly straight, middle and hind ones feebly curved inward, with small thorn on outer side at apex; tarsi relatively well-developed, each joint more or less dilated to apex, thickly haired beneath, relative length of each joint (base to apex): 2.0, 1.4, 1.4, 1.2, 2.7; 2.2, 1.4, 1.4, 1.3, 2.8; 3.5, 2.1, 2.1, 3.5; claws sharp.

Body length: ca. 7 mm.

Holotype: ♂ Hsuleng, Taoyuan Hsien, Formosa, 3 V 1981, S. FUKUDA leg.

This now species somewhat resembles *Hemicera kurosawai* MASUMOTO from Formosa, but is distinguishable from the latter by its larger and posteriorly-widened body, broadly transverse head with large eyes and narrower interocular space, strongly convex pronotum with shallower punctures, elytral intervals nearly flattened and scattered with minute punctures, middle and hind tibiae armed small end-thorn, and larger, elongate, strongly curved aedeagus.

Hemicera tsuyukii sp. nov.

Blackish brown; anterior and posterior portions of pronotal sides, 5 basal joints of antennae, each base of legs, tibiae, tarsi, mouth organs, gula, etc., more or less lighter in color; upper surface strongly bearing metallic, brassy luster; undersurface shining with bluish or dark greenish tinges. Oblong ovoid; strongly convex above.

Head transverse, moderately convex, minutely punctate; frons shortly and rather steeply sloping toward straight fronto-clypeal border; clypeus broadly transverse, closely and minutely punctate in posterior half, with anterior half narrow and membranous, nearly smooth, straightly truncate in front; labrum transverse with rounded sides, pubescent, sublinear in front, very feebly convex, closely and finely punctate, with larger punctures in transverse row; genae oblique, with outer marging weakly roundly produced; eyes very large, rather narrowly but roundly produced laterally; interocular space a little narrower than eye diameter; antennae barely reaching base of pronotum, 6 apical joints flattened and somewhat club-like, 6 th to 10 th dilated to apex and clearly transverse, 11 th ovoid, relative length of each joint (base to apex): 1.6, 0.7, 1.5, 0.8, 0.7, 1.4, 1.3, 1.5, 1.5, 1.5, 2.2.

Pronotum transverse (20.0 : 14.0), broadest at base, sublinearly and feebly narrowed in basal half, then roundly narrowed to front; front border nearly straight, finely margined but obsoletely so at median 1/5; basal border bisinuate, shortly truncate opposite scutellum; sides explanate, clearly margined and slightly reflexed; front angles rounded; hind angles subrectangular; disc rather strongly convex, arched in anterior portion, shortly, obliquely impressed at base on both sides, rather closely and minutely punctate. Scutellum tongue-shaped with fairly acute tip, sparsely scattered with microscopic punctures in posterior-middle.

Elytra a little more than 1.5 times as long as broad, gently widened from base, broadest at basal 2/3, then roundly narrowed to apex, slightly roundly produced in apical portion; dorsum very strongly convex above, thickest at middle; disc with rows of small punctures often striated, distance between them about 1-3 times their diameter, 1 st row and 2nd, 3rd and 4th, 5th and 6th converging near base, 5 th row distinctly deepened in basal portion; intervals nearly flat, weakly raised just after scutellum, scattered with minute punctures, these clearly smaller than those on pronotum; humeral portions moderately swollen; sides expanded obliquely downward, feebly widened toward posterior portion, finely margined and slightly reflexed.

Mentum trapezoid, pubescent, raised in anterior-median portion, closely punctate and rugose on both sides; gula relatively large and triangular, reticulate; terminal joint of each maxillary palpus large with outer side about 2.2 times length of inner, 1.2 times length of apical.

Prosternum short, reflexed in front, raised in fusiform and rimmed medianly, pointed at fnont of fusiform, depressed and produced to rear (prosternal process); mesosternum narrow, with hind border distinctly raised in V-shape; metasternum finely punctate, shallowly wrinkled, with shallow median groove, front border rimmed. Abdomen finely punctate, 2 anterior sternites and basal half of 3 rd sternite longitudinally wrinkled and microscopically shagreened, 2 apical sternites smooth and more finely punctate, rather strongly depressed across border of 3 rd and 4 th sternites on both sides, shallowly impressed in posterior half of 4 th on both sides.

Legs medium-sized; femora moderately thickened, each hind femur with oblong, short tuft around basal 2/5 on hind margin; tibiae haired in apical half of inner side; tarsi with each joint dilated to apex, distinctly so in fore legs, haired beneath, relative length of each joint (base to apex): 1.7, 1.2, 1.0, 0.7, 3.5; 2.5, 1.5, 1.3, 1.2, 4.0; 4.0, 2.0, 1.5, 4.0, respectively; claws small but sharp.

Body length: 7.2–7.4 mm.

Holotype: ♂ Shanping, Kaohsiung Hsien, 27 VI 1981, S. TSUYUKI leg.; paratypes: 1 ex., ditto; 1 ex., ditto, S. FUKUDA leg.

This new species resembles *Hemicera sakaii* MASUMOTO from Formosa, but is easily distinguished from the latter in having a larger, wider body, rows of elytral punctures stronger and less frequently striated, and a larger and longer aedeagus.

Hemicera pingtita **sp. nov.**

Black; basal half of each antenna, mouth organs, base of each leg etc., brownish; pronotum and elytra bearing iridescent metallic luster, color pattern on latter as Fig. 9; strongly shining. Oblong oval; strongly convex above.

Head transverse, feebly convex, rather closely, deeply and minutely punctate; frons rather sparsely punctate, shortly and simply sloping forward; frontal suture fine and straight, with each end reaching anterior portion of ocular sulcus; clypeus with wide basal half, slightly convex, closely and minutely punctate, front border nearly straight and obtusely produced at both sides, anterior half membranous, roundly narrowed toward straight front, smooth except around outer margin where microscopically shagreened; labrum transverse with rounded-sides, straight in front, feebly conxex, closely and finely punctate in basal 2/3, impunctate in apical portion, where bordered by large and pubescent punctures; genae feebly and roundly produced, slightly depressed in posterior portion; interocular space about 1.7 times eye diameter; eyes transverse, relatively large, roundly produced laterally; tempora rather strongly narrowed behind eyes then subparallel; antennae short, hardly reaching base of pronotum, 6 apical joints flattened and somewhat club-like, 6 th to 10 th joint dilated toward apex, 7 th to 10 th transverse, 11 th subquadrate, relative length of each joint (base to apex): 2.0, 1.3, 2.0, 1.8, 1.3, 1.7, 1.7, 1.7, 2.0, 1.8, 2.7.

Pronotum transverse, about 1.7 times as broad as long, broadest at base, roundly narrowed to front, weakly sinuate before base; front border emarginate and feebly produced, median half margined but interrupted at middle; basal border widely bisinuate, shortly straight opposite scutellum; sides conspicuously margined and a little reflexed; front angles subrectangular, with rounded tips; hind angles a little acute; disc rather strongly convex, softly flattened near base, shallow spot-like impression near front border and short oblique one at base, each on both sides, rather closely and minutely punctate, punctures a little sparser and larger than those on head. Scutellum subpentagonal with long basal side flat and impunctate.

Elytra 1.4 times as long as broad, gradually widened, broadest at basal 3/5, then roundly narrowed; dorsum strongly convex above, thickest at middle; disc finely striated, punctures in striae relatively small but deep, closely set, notching intervals, distance between them about 1–3 times their diameter, basal portions of 3 rd to 5 th stria deep, 5 th especially conspicuous; intervals flat or feebly convex, scattered with microscopic punctures; side feebly expanded, finely margined and a little reflexed.

Mentum tongue-shaped, shortly truncate at base, anterior-median portion raised, sparsely pubesuent; gula narrow, smooth in apical portion, transversely wrinkled in posterior portion; each maxillary palpus with terminal joint of arcuate outer side, about twice length of inner, 1.2 times length of apical.

Prosternum short and a little rugose, front border reflexed, with fusiform elevation extending from front border through intercoxal space to prosternal process, surface of elevation flat and shagreened, bisulcate in middle and hind portion, median of front border (front of fusiform elevation) pointed, prosternal process (rear of fusiform elevation) triangular and feebly depressed; mesosternum also short, with hind border strongly raised in V-shape and rugose; metasternum minutely punctate and shallowly wrinkled throughout, scattered with large punctures and coriaceous laterally. Abdomen rather closely and minutely punctate, shallowly wrinkled on 3 anterior sternites.

Legs relatively short; relative length of each tarsal joint as follows: 2.5, 1.5, 1.5, 1.3, 5.5; 3.0, 2.0, 1.7, 1.5, 5.5; 6.0, 2.5, 2.0, 5.8; claws stout.

Body length: 9.5–11.0 mm.

Holotype: ♂ Kenting Park, Pingtung Hsien, Formosa, 3 Ⅴ 1971, K. SAKAI leg.; paratypes: 1 ex., ditto; 1 ex., ditto, Ⅴ 1973, H. CHANG leg.; 1 ex., ditto, 5–6 Ⅵ 1978, K. MURAKAMI leg.

This new species is closely related to *Hemicera zigzaga* MARSEUL from Japan, but is differentiated from the latter in having a wider body posteriorly, a different-colored pattern on the elytra and a differently shaped aedeagus.

GEBIEN treated *H. zigzaga* as synonymous with *H. pulchura* HOPE from China, but in the author's opinion, more careful re-examination of this group is needed.

Hemicera shantita sp. nov.

Black; mouth organs, gula, reddish brown; pronotum and elytra bearing iridescent metallic luster; color pattern (tracing reddish color) of elytron as Fig. 10; strongly shining. Oblong oval; strongly convex above.

Head transverse, feebly convex, closely punctate; frons shortly and simply sloping toward straight fronto-clypeal border, along which narrowly impunctate; clypeus softly depressed, with wide but short basal half slightly convex, more closely and minutely punctate than frons, front border nearly straight and obtusely produced on both sides, anterior half membranous, about half width of basal portion, roundly narrowed toward straight front margin, microscopically shagreened; labrum transverse with rounded sides, sublinear in front, feebly convex, closely and finely punctate in basal 2/3, apical portion impunctate and bordered by large and pubescent punctures in row; genae obliquely roundly produced, punctate like clypeus, slightly depressed in posterior portion; interocular space about 1.5 times eye diameter; eyes extremely transverse, roundly produced laterally; vertex with large spot-like impression in middle; antennae medium-sized, reaching base of pronotum, 6 apical joints flattened and somewhat club-like, 6 th to 10 th joint dilated toward apex, 8 th to 10 th transverse, 11 th subquadrate, relative length of each joint (base to apex): 2.0, 1.3, 2.0, 1.5, 1.3, 1.8, 1.9, 2.2, 2.2, 2.0, 2.8.

Pronotum trapezoid, about 1.5 times as broad as long, subparallel in basal 2/5, then roundly narrowed to front; front border nearly straight, narrowly margined but interrupted at median 1/5; basal border widely bisinuate, remarkably roundly produced along median 1/3; sides conspicuously margined and reflexed; front angles subrectangular with rounded tip; hind angles also subrectangular; disc rather strongly convex, slightly arched in anterior portion, softly depressed in middle near base, closely and rather deeply punctate like head, narrowly, longitudinally impunctate along median line, with spot-like impression in frontal 1/4, oblique linear impression at base, and another inconspicuous oblique linear impression at base, each on both sides. Scutellum subpentagonal with long basal side, flat, scattered with fine punctures.

Elytra 1.5 times as long as broad, feebly widened from base, broadest at basal 2/3, then roundly narrowed; dorsum rather strongly convex above, thickest at middle; disc finely striated, punctures in striae very small, distance between them about 1–3 times their diameter, basal portions of 1 st to 6 th stria deep, 5 th especially distinct; intervals feebly convex, closely and finely punctate, punctures smaller than those on pronotum; sides feebly expanded, finely margined and a little reflexed.

Mentum trapezoid, sparsely punctate and pubescent, anterior-median portion raised; gula triangular and narrow, smooth; terminal joint of each maxillary palpus relatively large with arcuate outer side about twice length of inner, 1.3 times length of apical.

Prosternum short and a little rugose, front border reflexed, with fusiform elevation extending from front border through intercoxal space to prosternal process, surface of elevation flat and sparsely punctate, bisulcate in middle and hind portions, median of front border (front of fusiform elevation) pointed, prosternal process (rear of fusiform elevation) triangular; mesosternum also short, with hind border strongly raised in Y-shape and rugose; mesasternum finely punctate and shallowly wrinkled throughout, coriaceous laterally. Abdomen rather closely and finely punctate, shallowly wrinkled in anterior half, more finely punctate in apical half.

Legs slightly longer, otherwise nearly same characteristics as *H. zigzaga;* relative length of each tarsal joint as follows: 2.4, 1.7, 1.5, 1.3, 5.5; 3.5, 2.0, 1.7, 1.5, 5.7; 5.6, 2.8, 2.0, 5.8; claws stout.

Body length: 10.5-11.5 mm.

Holotype: ♂ Paling, Taoyuan Hsien, Formosa, 29 Ⅳ 1979, S. FUKUDA leg., paratypes: 2 exs., ditto, 2 exs., ditto, 28 Ⅳ-1 Ⅴ 1979, K. KINUGASA leg.

This new species is one of the *zigzaga*-group, and differs from *H. zigzaga* in having a more elongate, less convex, and subparallel-sided body, a depressed clypeus, comparatively long antennae, a vertex with median impression, a trapezoid pronotum with conspicuously margined and reflexed sides, a transverse mentum, and a differently shaped aedeagus.

Gnesis helopioides kentingensis **subsp. nov.**

This new subspecies differs from the form occurring in Japan in the following points: 1) the body is more elongate and less convex, 2) the head is more transverse and flattened, 3) the antennae are longer and more strongly thickened toward the apical joint, 4) the pronotum is broader, broadest at basal 1/3 and more strongly punctate, 5) the striated punctures on the elytra are more sparsely set, 6) the intervals are nearly flat and impunctate, 7) the legs are comparatively slender with the profemural teeth larger and sharper, 8) the aedeagus is slender but a little shorter.

Relative length of each joint of major parts as follows:

1) antennae (base to apex): 1.4, 1.0, 1.6, 1.4, 1.2, 1.3, 1.3, 1.5, 1.5, 1.5, 2.2.

2) fore, middle, and hind tarsi (base to apex): 1.6, 1.3, 1.2, 0.8, 3.3; 1.7, 1.5, 1.3, 0.9, 3.6; 2.7, 1.6, 0.9, 3.8.

3) pronotum (breadth: length): 17.5 : 14.5

4) elytra (length: breadth): 33.0 : 21.5

Body length: 7.5 mm.

Holotype: ♂ Kenting Park, Pingtung Hsien, Formosa, 3 Ⅴ 1971, K. SAKAI leg.

In the previous series, I described *Gnesis liukueiensis* from Formosa and I supposed that it might be the same as the species recorded by H. GEBIEN from Formosa in 1913. Recently I added another type of *Gnesis* to my collection and this is the new subspecies described above.

Tribe Tenebrionini

***Setenis formosana* sp. nov.**

Dark blackish brown; antennae, mouth organs, gula, part of undersurface, etc., lighter in color; upper surface weakly sericiously shining and microscopically shagreened. Elongate, weakly convex and softly flattened.

Head subhexagonal, moderately convex posteriorly, widely flattened anteriorly, rather closely and irregularly punctate, with shallow median impression on vertex, short but distinct impression on both sides near eyes; frons sparsely punctate in front, frontal suture straight and very fine, with both ends obliquely bent forward and reaching outer margin; clypeus wide, with short transverse impression in posterior portion, punctures finer toward front, front border widely truncate and roundly bent downward, both sides short and oblique; genae feebly raised but depressed posteriorly with outer margins obtusely obliquely produced; eyes moderately arched laterally; ocular sulcus shallow; interocular space about twice eye diameter; antennae short, 6 apical joints flattened and somewhat club-like, 6 th to 8 th triangular, 9 th and 10 th subquadrate, 11 th oblong, relative length of each joint (base to apex): 3.0, 1.5, 3.5, 2.6, 2.4, 2.2, 2.1, 2.2, 2.1, 2.0, 2.8.

Pronotum transverse (28.0 : 21.5), broadest at middle, roundly narrowed to front, comparatively strongly narrowed to rear and distinctly sinuate before base; front border nearly straight, margined but margin interrupted along median 1/3, where weakly triangularly raised; basal border widely bisinuate, with margin thickened in middle; sides completely margined; front angles rounded; hind angles distinctly acute and protruding obliquely backward; disc weakly convex, flattened in middle, shallowly grooved medianly, obliquely impressed at basal 1/4 on both sides, irregularly, rather closely and finely punctate as head. Scutellum subcordate, raised along posterior margin, finely punctate.

Elytra 1.9 times as long as broad, gently widened from base, broadest at basal 3/5, then roundly narrowed to apex, feebly, narrowly, roundly produced in apical portion; dorsum weakly convex and feebly flattened longitudinally, roundly but very slightly depressed after scutellum; disc with rows of small punctures often striated, distance between them about 1–5 times their diameter, 5th stria deepened near base and reaching basal border; intervals nearly flat, scattered with microscopic and setaceous punctures, shallowly transversely wrinkled and fairly noticeably setaceous in lateral portions; humeral portions rather distinctly swollen; sides feebly expanded obliquely downward, finely margined.

Mentum subcordate, thickly tufted; gula tongue-shaped, nearly smooth; terminal joint of each maxillary palpus with arcuate outer side about 1.8 times length of inner, 1.4 times length of apical.

Prosternum finely margined in front, closely, setaceously and finely punctate, transversely rugose, bisulcate between intercoxal space, with prosternal process wide and very slightly produced; mesosternum raised in V-shape in posterior half, shallowly wrinkled; metasternum shallowly wrinkled, pubescently and finely punctate in lateral portions. Abdomen closely, finely and setaceously punctate in 2 anterior sternites and anterior half of 3 rd sternite, posterior half of 3 rd sternite and 2 apical sternites simply, closely and finely punctate, with outer margin of anal sternite feebly raised.

Fore tibiae nearly straight in basal 3/5, then curved in- and slightly downward and thickened to apex, haired in apical 3/7 of inner side, middle tibiae slightly thickened from base to basal 3/7, then a little thinned, and again rather strongly thickened and feebly bent upward to apex, haired in apical 1/3 of inner portion, hind tibiae gently thickened from base basal 1/3, then thinned, and again thickened to apex, haired in apical 3/5 of inner portion; relative length of each tarsal joint (base to apex): 2.2, 1.3, 1.3, 1.5, 7.0; 4.0, 1.8, 1.8, 1.6, 7.0; 5.8, 2.2, 2.0, 8.8, respectively.

In female, upper surface rather evenly and less closely punctate, each tibia simply curved inward, and mentum without tuft.

Body length: 20-25mm.

Holotype: ♂ Meifeng, Nantou Hsien, Formosa, 14-17 Ⅴ 1973, H. YOKOYAMA, leg., paratypes: 1 ex., ditto, 2 exs., 9 Ⅵ 1973, 1 ex., 11 Ⅵ 1973; 1 ex., Sungkang, 9 Ⅵ 1974, H. YOKOYAMA leg.; 1 ex., Meifeng, 11 Ⅵ 1974, K. AKIYAMA leg.

This new species somewhat resembles *Setenis valgipes* MARSEUL from Japan, but differs from the latter in having a relatively small body, a broader pronotum with acute hind angles, elytra with rows of often striated punctures more closely set and with shorter scutellary strioles, and a much smaller (about 1/2 in length), more simply formed, slender aedeagus.

Setenis taiwana sp. nov.

Black; antennae, tarsi, mouth organs, gula, blackish brown; upper surface feebly shining (microscopically shagreend). Elongate; weakly convex.

Head slightly transverse, fairly flattened, irregularly punctate, with median impression on vertex, shallow but rather wide longitudinal grooves near eyes with outer portion of each groove raised and ridge-like; frontal suture straight, short and fine, with both ends bent forward but soon disappearing; clypeus wide, irregularly and rather closely punctate, punctures closer and finer toward front, front margin widely, straightly truncate and feebly bent downward, short transverse groove in middle; genae nearly flat but depressed posteriorly, with outer margins oblique and rounded before eyes; eyes relatively large, roundly produced laterally, ocular sulcus fairly distinct in inner side of each eye; interocular space about twice length of eye diameter; antennae short, hardly reaching base of pronotum, 6 apical joints flattened and somewhat club-like, 11 th oblong, relative length of each joint (base to apex); 2.7, 1.0, 3.8, 2.6, 2.6, 2.4, 2.3, 2.1, 2.0, 1,9, 2.5.

Pronotum subquadrate (23.5 : 19.0), broadest just after middle, gently narrowed to front, comparatively strongly narrowed to rear and moderately sinuate before base; front border nearly straight, with margin interrupted at median 1/4; basal border clearly bisinuate, fairly thickly margined; front angles nnrrowly rounded; hind angles acute; sides narrowly margined; disc weakly convex, faintly flattened in middle, rather closely punctate, punctures larger than those on head, with oblique impression at basal 1/5 on both sides. Scutellum triangular with rounded sides, finely punctate, slighly depressed anteriorly.

Elytra 1.8 times as long as broad, feebly widened from base, broadest at apical 1/3, then roundly narrowed to apex; dorsum moderately convex, thickest at about apical 1/3; disc punctate-striate, punctures moderate size and rather shallow, distance between them 1-2.5 times their diameter, 5 th stria deepened near base, 6 th following inner side of humeral swell; intervals moderately convex, very finely punctate, microscopically setaceous and reticulate, with sutural intervals weakly raised in posterior half; sides narrowly expanded, finely margined.

Mentum subcordate, thickly tufted; gula triangular with apex shortly truncate; terminal joint of each maxillary palpus with arcuate outer side 1.5 times length of inner and 1.3 times length of apical.

Prosternum finely margined in front, finely punctate, moderately raised along inner border of coxal cavities, with prosternal process wide but only feebly produced; mesosternum raised in V-shape in posterior half and finely punctate; metasternum rather closely, finely punctate and pubescent. Abdomen rather closely, finely, setaceously punctate, 3 anterior sternites shallowly wrinkled.

Fore tibiae elongate, nearly straight in basal 2/3, then rather stongly bent in- and downward and thickened, haired on inner side of apical portion, middle tibiae moderately curved in and slightly upward, feebly thickened to apex, haired on inner side of apical 1/3, hind tibiae nearly straigth in basal 2/5, then very slightly bent outward and thickened, and promptly curved in- and very feebly upward, haired in apical 1/3; relative length of each tarsal joint (base to apex): 1.5 1.0, 0.9, 1.0, 7.0; 3.8, 1.4, 1.3, 1.4, 7.8; 6.0, 2.6, 2.4, 7.8.

Body length; 19-21 mm.

Holotype: ♂ Lushan, Nantou Hsien, Formosa, 1-2, Ⅴ 1973, S. TSUYUKI leg., paratype: 1 ex., Nanshanchi, Nantou Hsien, 10 Ⅵ 1973, TU CHINLONG leg.

This new species resembles *Setenis okinawanus* M.T. CHÛJÔ from Okinawa Is., but differs from the nominate species in having a broader flattened head, a broader, less closely punctate pronotum, deeper elytral striae but with shallower punctures, more convex intervals, and a larger and quite differently shaped aedeagus.

***Menephilus formosanus* sp. nov.**

As this new species very closely resembles both *Menephilus arciscelis* MARSEUL and *M. medius* MARSEUL from Japan, some entomologists have recorded it as *M. arciscelis* or *M. medius* from Formosa.

The new species may be distinguishable from them in the following characteristics:

Body smaller and more slender; lighter in color (dark brownish black).

Head more strongly punctate; front margin of clypeus feebly arched forward; grooves in interocular space, grooves on fronto-clypeal and gena-clypeal borders deep and distinct with arrangement as shown in Fig. 7; relative length of each antennal joint (base to apex): 1.8, 0.8, 2.0, 1.6, 1.6, 1.5, 1.6, 1.5, 1.4. 1.6, 2.0.

Pronotum (breadth : length=23.0 : 18.5) with front angles angulate with rounded tips and hind angles distinctly acutely produced; disc more strongly punctate. Scutellum slightly depressed, fairly strongly punctate.

Elytra a little less than twice as long as broad, strongly punctate-striate; intervals microscopically punctate, feebly transversely wrinkled.

Mentum with subquadrate projection in anterior portion.

Prosternum comparatively strongly punctate; lateral portions of mesosternum, and metepimera rather strongly punctate. Abdomen fairly strongly punctate but shallowly wrinkled.

Legs comparatively short; fore tibiae nearly straight, suddenly curved inward in apical 2/7; relative length of each tarsal joint (base to apex): 1.5, 1.0, 0.8, 0.7, 4.5; 1.6, 1.1, 0.9, 0.7, 4.7; 1.6, 1.2, 1,2, 5.0.

Aedeagus as shown in Fig. 7.

Body length: 9.5-10.5 mm.

Holotype: ♂ Wulai, Taipei Hsien, Formosa, 25 Ⅴ 1971, K. SAKAI leg., paratypes: 2 exs., ditto.

Menephilus taiwanus sp. nov.

This new species is closely allied to *Menephilus lucens* MARSEUL from Japan, but differs from the nominate species in the following characteristics:

Body smaller and somewhat more slender.

Head more finely punctate throughout; grooves in interocular space, on fronto-clypeal and gena-clypeal borders deeper and more distinct; relative length of each antennal joint (base to apex): 1.5, 0.8, 2.0, 1.7, 1.5, 1.4, 1.5, 1.6, 1.6, 1.7, 2.1.

Pronotum more transverse (23.0 : 17.5), more convex above but feebly explanate in lateral portions; sides more strongly sinuate before base; front and hind angles both more acutely angulate; disc closely and more finely punctate, impressed medianly in frontal 1/5, obliquely so at base on both sides.

Elytra 2.1 times as long as broad, more finely punctate-striate; intervals more finely punctate, feebly bearing silky sheen.

Mentum with front margin and median portion distinctly raised; gula parabolic, microscopically shagreened; terminal joint of each maxillary palpus with inner corner subrectangular.

Prosternum more finely punctate, microscopically shagreened; metasternum more shallowly wrinkled, punctate in lateral portions only. Abdomen more finely punctate.

Legs comparatively slender; fore tibiae nearly straight in basal 2/5, then curved in- and downward and thickened toward apex; relative length of each tarsal joint (base to apex): 1.5, 1.2, 1.2, 1.0, 4.5; 1.6, 1.3, 1.2, 1.2, 5.0; 1.9, 1.6, 1.6, 5.6.

Aedeagus thicker, more strongly curved to apex.

Body length: 11–12 mm.

Holotype: ♂ Meifeng, Nantou Hsien, Formosa, 10 Ⅷ 1975, K. MASUMOTO leg., paratypes: 1 ex., ditto, 25 Ⅳ 1976; 1 ex., ditto, 14–17 Ⅴ 1973, 1 ex., 9 Ⅵ 1973, 2 exs., 11 Ⅵ 1973, H. YOKOYAMA leg.

Tribe Ulomini

Hypophloeus (*Paraphloeus*) *zoltani* sp. nov.

Reddish brown; head, sutural portion a little darker; moderately shining. Elongate and subparallel; rather strongly convex longitudinally.

Head nearly triangular, moderately convex, feebly flattened in middle, closely and finely punctate; frontal suture finely grooved and arcuate backward; clypeus moderately convex, truncate in front, more finely punctate than frons; genae oblique, rather strongly depressed posteriorly; eyes very large and somewhat oblique, roundly produced laterally; interocular space nearly as wide as eye diameter; antennae short, reaching middle of pronotum, 5 th joint to 10 th strongly dilated to apex, 11th ovoid or semirhomboid shape.

Pronotum subquadrate, broadest just after middle, gently narrowed to front and base; front border slightly produced, feebly margined at front angles only; basal border also slightly produced, completely finely margined; sides finely margined; front angles rounded; hind angles obtusely angulate with feebly pointed tip; disc rather strongly convex, rather closely punctate, punctures a little larger than those on head, distance between each puncture about 1–2 times its diameter. Scutellum relatively large, widely subcordate and truncate at base, scattered with fine punctures.

Elytra about 2.2 times as long as broad, feebly widened posteriorly with rounded apexes; dorsum strongly convex, softly flattened in middle; disc with rows of fine punctures, distance between them about 1–2 times their diameter; intervals nearly flat, rather closely, finely punctate, punctures subequal in size and distance to those in rows and a little smaller than those on pronotum; humeral corners subrectangular; sides finely margined.

Prosternum closely and finely punctate, microscopically shagreened. Abdomen more closely and finely punctate.

Fore tibiae rather strongly dilated and obliquely truncate at apex, outer corner pointed like finger, inner thorn bent downward.

Body length: ca. 5mm.

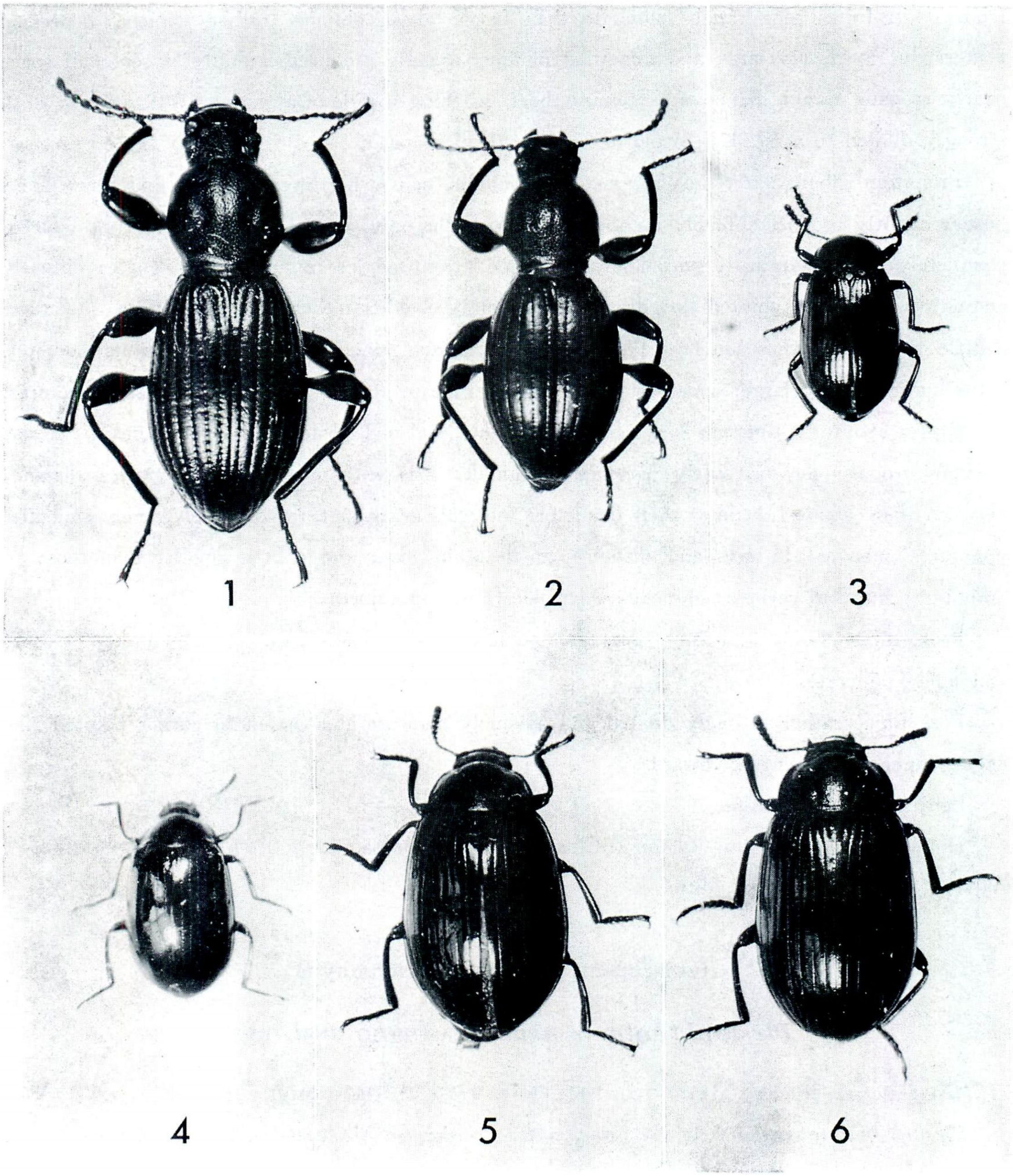
Holotype: ♀ Fenchihu (1400m), Chiayi Hsien, Formosa, 20 Ⅴ 1977, J. KLAPPERICH leg., (HNHM), paratype: 1 ex., ditto.

Replacement of Rejected Homonym

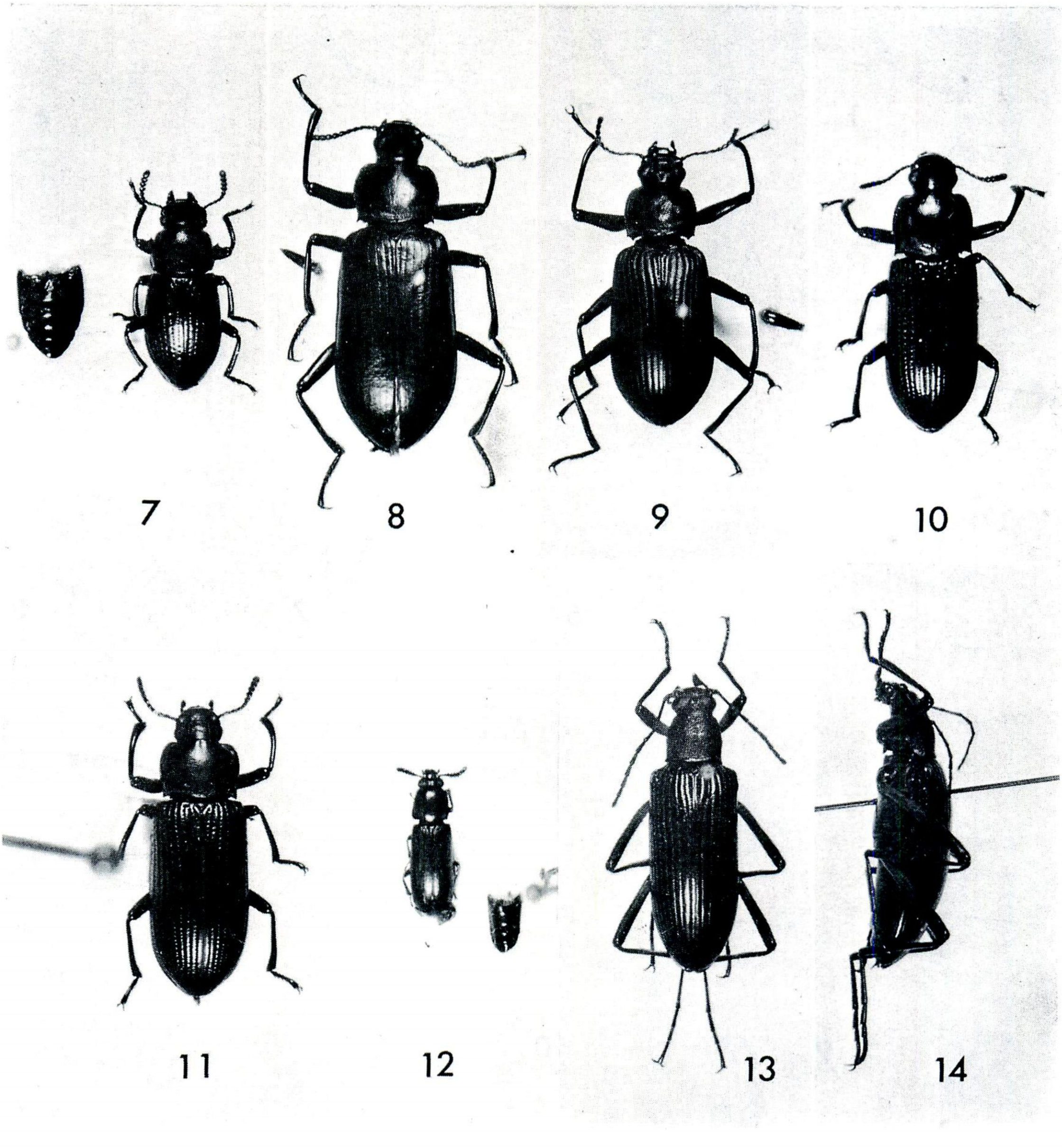
Plesiophthalmus uenoi **MASUMOTO nom. nov.**

Plesiophthalmus taiwanus MASUMOTO, 1981, Elytra, 9(1): 28, (nec NOMURA, 1964)

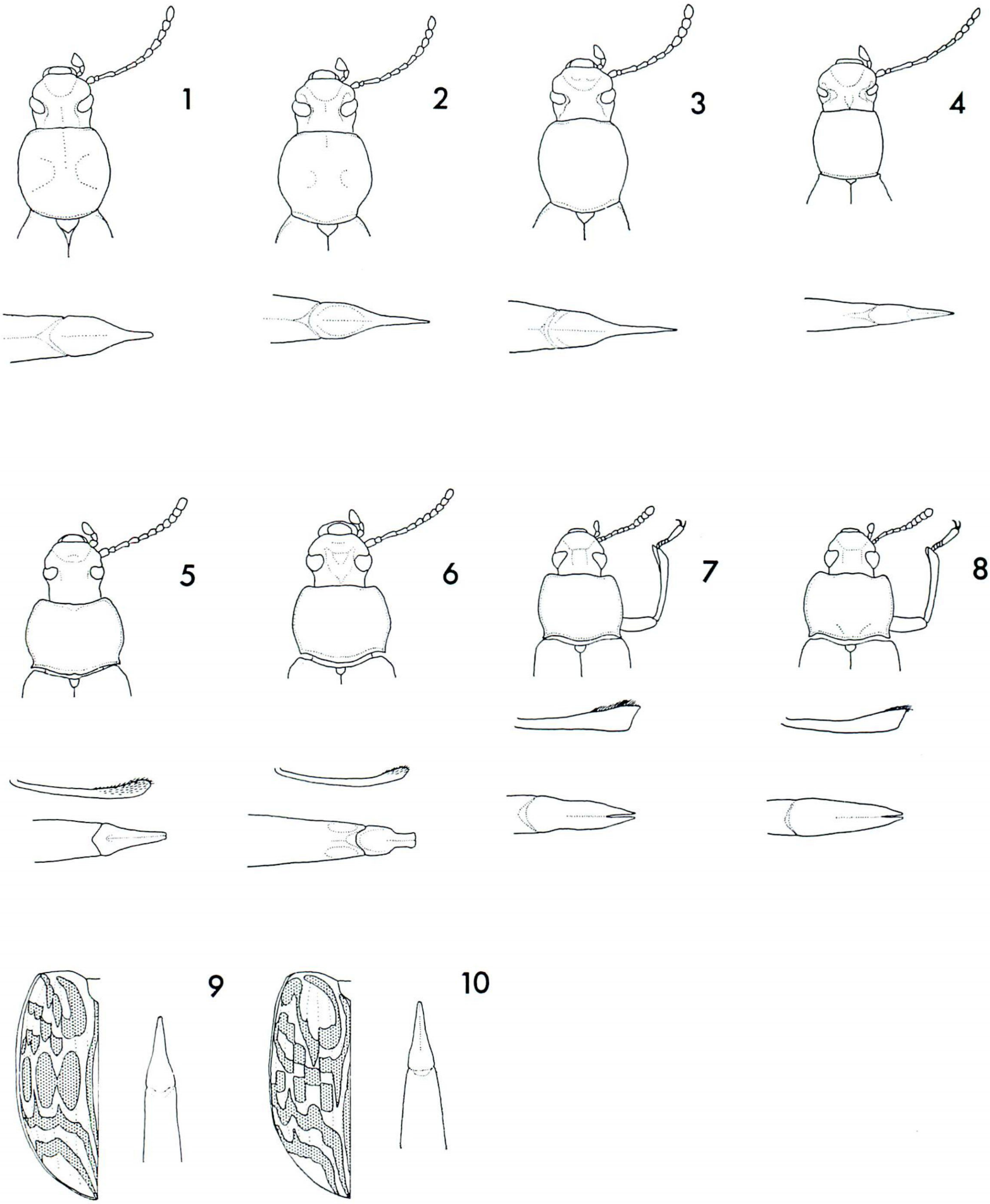
Plesiophthalmus uenoi is newly proposed for *P. taiwanus* MASUMOTO, 1981, because the latter is preocupied by *P. spectabilis taiwanus* MOMURA, 1964.



写真：1. *Paramisolampidius alishanus* sp. nov., ♂ (holotype) 2. *Paramisolampidius wufengus* sp. nov., ♂ (holotype) 3. *Hemicera fukudai* sp. nov., ♂ (holotype) 4. *Hemicera tsuyukii* sp. nov., ♂ (holotype) 5. *Hemicera pingtita* sp. nov., ♂ (holotype) 6. *Hemicera shantita* sp. nov., ♂ (holotype)



写真：7. *Gnesis helopioides kentingensis* subsp. nov., ♂ (holotype)　8. *Setenis formosana* sp. nov., ♂ (holotype)　9. *Setenis taiwana* sp. nov., ♂ (holotype)　10. *Menephilus formosanus* sp. nov., ♂ (holotype)　11. *Menephilus taiwanus* sp. nov., ♂ (holotype)　12. *Hypophloeus* (*Paraphloeus*) *zoltani* sp. nov. (paratype)　13-14. *Strongylium basifemoratum* MÄKLIN (China)



図：1. *Paramisolampidius alishanus* sp. nov., ♂ 2. *Paramisolampidius wufengus* sp. nov., ♂ 3. *Paramisolampidius shirozui* M.T. CHÛJÔ 4. *Paramisolampidius taiwanus* MASUMOTO, ♂ 5. *Setenis formosana* sp. nov., ♂ 6. *Setenis taiwana* sp. nov., ♂ 7. *Menephilus formosanus* sp. nov., ♂ 8. *Menephilus taiwanus* sp. nov., ♂ 9. *Hemicera pingtita* sp. nov., ♂ 10. *Hemicera shantita* sp. nov., ♂

(T. ENDO del.)

今回は Misolampini 2種，Cnodalonini 4新種，1新亜種，Tenebrionini 4新種，Ulomini 1新種，および種名変更1種の記載を行なった．

台湾産ゴミムシダマシ科解説〔1〕に引き続き和文の解説を行なう．新たに発表すべき種が極めて多い事，省スペースに徹せねばならぬ事などの理由のため，今回より形式を若干簡素化させていただく．

（Tribe Strongyliini の続き）

3-18 *Strongylium alishanum* MASUMOTO
アリサンナガキマワリ*

MASUMOTO, 1981, Elytra, 9 (1) : 15

体長23 mm．暗赤褐色．*S. lishanum* に似るが大型で，上翅の条溝が極めて細く，間室は平滑．原産地は阿里山．

3-19 *Strongylium zoltani* MASUMOTO
カサブナガキマワリ*

MASUMOTO, 1981, Elytra, 9 (1) : 16

体長12 mm．黒色で背面は弱い青藍色の金属光沢を帯び，長毛を装う．上翅は軽く波状，強くえぐられるように条刻される．触角は先端6節が平圧され幅が広がる．原産地は奮起湖．（*Holostrongylium*）

以上2種が〔1〕に解説した台湾産 *Strongylium* に追加される．なお槙原（1972）は梨山から *S. basifemoratum* MÄKLIN を記録しているが，この種は中国上海が原産地で，KASZAB の *S. klapperichi* はシノニムである．上方から見ると *S. carbonarium* に酷似しているが，背面がよく膨隆し，腿節の基半分が黄橙色である．採集地からして，あるいは *S. lishanum* を指しているのかもしれない．

さて，*Ainu* 属は，LEWIS（1894）が *Strongylium* に近い属として創設して以来，Strongyliini 族として扱われて来たが，前回も述べた通り本族とするのは無理がある．まず前・中跗節が先方に広がり，前跗節の第四節は二葉状でしかも非対照である．この特徴は *Erulipus*, 1903（Helopini）の主要な特徴でもある．次に交尾器の形状だが，特の♀のそれには♂のものと感違いしそうな角質化した部分を具える．この特徴は *Erulipus* はもちろん，*Pseudonautes*, 1893（＝*Thydemes*. 1894）（Cnodalonini），*Periphanodes*, 1943（＝*Periphanes*, 1882）（Helopini），*Thesilea*, 1878（Cnodalonini），*Scotaeus*, 1836（Cnodalonini）等々に見られる．なお♂の交尾器はやはり *Erulipus* に最も近い．中胸板の構造は基節間で水平だが，中央はかなり深くえぐられV型の傾斜陥没を有する．これは *Campsiomorpha*, *Pseudonautes* に近いことを示している．体が細長く，触角が糸状（またはあまり先端が太くならない）で，前跗節第四節が非対照，♀の交尾器や中胸板の形状などの共通した特徴をもつものを1つのグループ（Tribeが適当か）としてまとめた方がよいかもしれない．なお前胸背の形状は変化に富み，属以上の分類の決め手にはなりにくい．前々回の Strongyliini の検索表で『前胸背は上翅よりかなり幅が狭い』と述べたが，あまり適切でない．

2. Tribe Amarygmini キマワリ族

卵形～長卵形，背面は強く膨隆し，頭部は前傾～垂直，触角は細長い等の特徴をもつ仲間で，本邦の *Plesiophthalmus nigrocyaneus* キマワリ，*Elixota curva* コマルキマワリ等が含まれる．台湾から5属知られている．

キマワリ族の各属は，*Oogeton* を除いて（正確に述べると下記の通りだが）属創設時に的確な（決め手になる）特徴と，他属（近似の）との区別点があまり明確にされていないため，属の判定が極めてむずかしい．

Plesiophthalmus は MOTSCHULSKY が1857年に創設した．原記載を見ると，大きな互いに近接した両眼，長い触角，内側中央がふくらんだ前腿節，彎曲した前脛節の形状等が述べられている．

他方 *Cyriogeton* は PASCOE により *C. insigne* を模式種として1871年に設立された．antennary lobe の形状，紡錘形の腿節，下面を密に毛を装う跗節などの特徴をあげているが，これらは *Plesiophthalmus* にもあてはまり決め手にならない．恐らく *Plesiophthalmus* をよく知らなかったものと思われる．しかしその後は東南アジアを中心に *Cyriogeton* の種が次々と発表されていった．*Plesiophthalmus* は日本・中国それに一部東南アジアから記録され，いわば両勢力の接点である台湾は両属が分布することとなった．

本来ならば両属の本質的な相違点を再検討し，*Cyriogeton* が独立の属として存続し得ないとするならば消すべきであるが，そのためには多数の既知種の整理という，膨大な精力と時間を必要とする仕事がある．本解説では便宜的に現代ヨーロッパの学者の区分に従っている．

Oogeton は KASZAB が台湾の *O. nigrocoeruleum* を模式種として1941年に創設された属と考えられていた．ところが1939年付発行の動物学雑誌に三輪が *Oogeton makii* なる種（三輪は *Oogeton* の新属記載をしていない*!!*）を発表している．

KASZAB の書いたものは属がホモ・シノニム，種がシノニムという事になる．なお，KASZAB 博士は三輪の原記載を見たことがないと言っておられた．

Amarygmus と *Elixota* の区分は比較的容易に思える．しかし個々にあたっていくと，体側がかなり平行な *Amarygmus* も出てくるのでまことにやっかいである．

台湾産 Amarygmini の検索表

1. 前胸背基部と上翅基部はほぼ同幅かつ連続的に膨隆．中・小型種が多い……2
—上記と異る形体．大型種が多い……3
2. 体は卵型……*Amarygmus*
—体は長卵型でしばしば両側が平行……*Elixota*
3. 前胸背は完全にフチ取られる．♂の前・中跗節は広がる．前腿節中央はトゲ状にならない……*Oogeton*
—後縁はフチ取られない．♂の前・中跗節は広がらない……4
4. 体は短かめ．前胸背と上翅の幅は差が明らか．上翅はしばしば前胸背にくらべ強く膨隆しセムシ状．色彩が派手な種も含まれる……*Cyriogeton*
—体は長め，前胸背と上翅の幅の差は少ない．上翅は前胸背にくらべわずかに（連続的に近く）隆まる……*Plesiophthalmus*

台湾産 *Amarygmus* の検索表

1. 上翅は紋又は虹色の光沢がある……2
—上翅は単色……3
2. 上翅は橙色の帯状紋を有す……*A. pilipes*
—上翅（背面）は虹色の強い光沢を帯びる *A. cuprarius*
3. 比較的大型種（9～10.5mm）……4
—比較的小型種（7.5mm 以下）……5
4. 背面は単色(黒銅色)．こまかいが深い点刻を密に具える……*A. sakaii*
—前胸背は緑色で両側と中央は金色．上翅は黒色で銅色光沢あり，頭胸背はこまかい点刻が疎に，上翅間室は一層疎に点刻される……*A. trichopus*
5. 比較的大型（6.5～7.5mm）．卵形．背面は暗緑色……*A. taiwanus*
—比較的小型（4mm以下）．やや長卵形……6
6. 触角は上翅中央後に達する．上翅は青藍色．前胸背は青緑色で光沢がやや弱く，点刻も浅い……*A. micans* var. *cyaneipennis*
—触角は上翅中央前の長さ，背面は黒緑青色で，一様に光沢があり，前胸背の点刻も明瞭……sp.(1)

(1) 恐らく新種．追って発表の予定．

台湾産 *Elixota* の検索表

1. 比較的小型(7mm以下)……*E. iridicollis* ?
—比較的大型（8.5～9.5mm）……2
2. 上翅の点刻列はアバタ状……*E. punctata*
—上翅の点刻列は正常……*E. pellegrini* ?

台湾産 *Cyriogeton* の検索表

1. 上翅は単色（紋は無い）……2
—上翅は単色でない……7
2. 比較的大型（15～20mm）でかつ上翅間室は平滑……3
—中型～小型（15mm以下）……4
3. 大型（18～20mm）で上翅はより長い．明らかな真鍮色光沢がある．肢は次種より太い……*C. shigeoi*
—より小型(15～18.5mm)，上翅はより短かい．会合部は屋根状，真鍮色光沢は無いか，あっても極めて弱い．肢は前種にくらべ細い……*C. nigroaeneum*
4. 上翅の前半は点刻列がアバタ状になる．前胸背前縁は幅広いV字状．（時に15mm を越える個体がある）…*kondoi*
—上記と異なる形状……5
5. 小型（9mm），サルハムシ型……*C. nishikawai*
—中型（13～14mm），より長形……6
6. 上翅前半（基部近附）に顕著な隆起あり，前胸背点刻は明らか……*C. nanshanchinense*
—上翅の形状は正常，背面の光沢は強い．前胸背の点刻は極めてこまかい……*C. fujitai*
7. 大型(11.5～12.5mm)，背面の膨隆度は弱い．上翅は深緑青色で赤藍色の大紋あり……*C. mayumiae*
—小型でサルハムシ型．灰白色の不鮮明な紋あり……*Cyriogeton* ?(2) sp.

(2) 恐らく *Eumoipocyriogeton* の新種．後日発表予定．

台湾産 *Plesiophthalmus* の検索表

1. 体は肩部でくびれる．（後翅が退化）……*P. uenoi*
—長卵形……2
2. 上翅は明らかに条刻され，条溝内の点刻もはっきりしている．光沢がある……3
—上翅の条溝～点刻列はめだたない．黒色でにぶいビロード状光沢あり……4
3. 大型(18～23mm)，上翅は後方に伸びる．背面の点刻はめだたない……*P. spectabilis taiwanus*
—小型(14mm)，上翅は短め．背面はかなり密に点刻される……*P. kanoi*
4. 体はよりずんぐりしている．前胸両側はまるまる，前胸背板は軽くまるく隆まる．上翅の条溝は極めて浅く点刻もめだたない……*P. formosanus*
—体は長め．前胸両値は前方に少しずつ狭まる．背板はやや縦に隆まる．上翅の条溝は極めて細いがみとめられる……*P. longipes* ?

台湾産 **Amarygmini** チェックリスト(第一次)

	GEBIEN, 1913	MIWA, 1939	KASZAB, 1941	M. T. CHÛJÔ, 1967–68	MASUMOTO, 1981	Others
Amarygmus pilipes GEB.	⊗			×	×	△(1) PIC
A. cuprarius WEB.	×		×		×	
A. trichopus KASZ.			⊗		×	
A. micans cyaneipennis PIC					×	△(2) MAKIHARA
A. taiwanus MAS.					⊗	
A. sakaii MAS.					⊗	
A. sp.					×(3)	
Elixota pellegrini PIC ?				△(4)	×	
E. punctata PIC				×	×	
E. iridicollis NAKANE ?					×(5)	⊗ NAKANE
Oogeton makii MIWA		⊗	△(6)		×	
Cyriogeton nigroaeneum GEB.	⊗		×		×	
C. kondoi MAS.					⊗	
C. shigeoi MAS.					⊗	
C. mayumiae MAS.					⊗	
C. nishikawai MAS.					⊗	
C. fujitai MAS.					⊗	
C. nanshanchiense MAS.					⊗	
C. ? sp.					×(7)	
Plesiophthalmus spectabilis taiwanus NOMURA	△			△	×	⊗ NOMURA, △ MAKIHARA
P. formosanus MIWA		⊗			×	
P. longipes PIC?				×	×	
P. kanoi MAS.					⊗	
P. uenoi MAS.					⊗(8)	

(注) (1) *Amarygmus formosanus* PIC, syn. nov.
(2) 槇原が *A. viridipes* GEBIEN? として紅頭嶼から記録しているものは恐らく本種だと思う.
(3) 恐らく新種であろう. 詳細は追って発表の予定.
(4) *E. curva* MARS. の記録.
(5) paratype. 台湾で得られるものは *Amarygmus carbonarius* HOPE によく似ている.
(6) *Oogeton nigrocoeruleum* KASZAB, gen. homo. syn., sp. syn. nov.
(7) 恐らく *Eumolpocyriogeton* の新種. 追って発表の予定.
(8) *P. taiwanus* と記載したが, 野村の *P. spectabilis taiwanus* が優先するので種名を改めた.
記号:⊗ 原記載　× 記録あり　△ 別種(別亜種)として記載・記録あり.

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ELYTRA Vol. 9, No. 2

昭和56年11月10日 印刷
昭和56年11月15日 発行
編集者 藤田 宏
新里達也
発行者 草間慶一
発行所 日本鞘翅目学会
Japanese Society of Coleopterology
東京都台東区東上野4-26-8
福田惣一方(〒 110)
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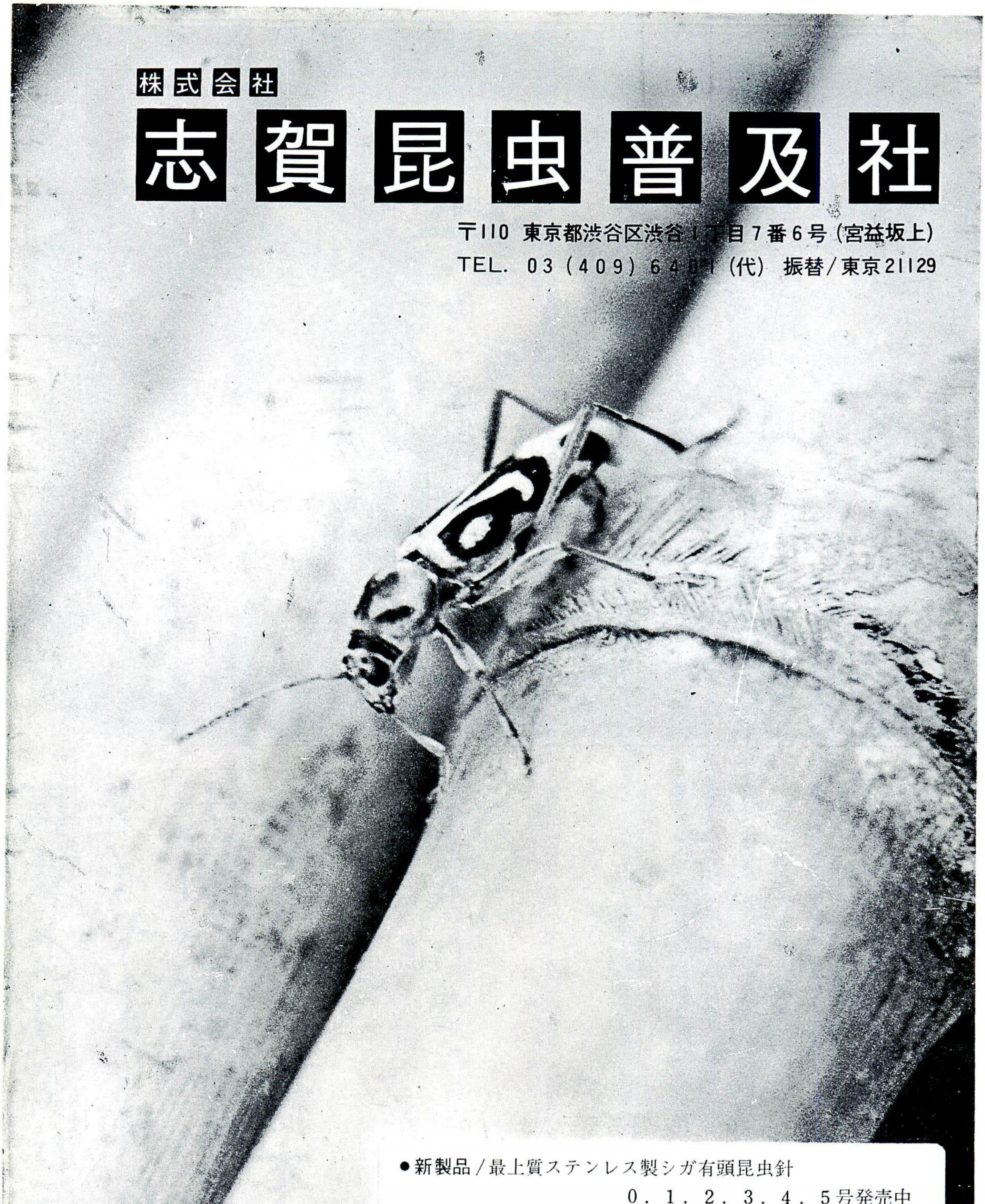

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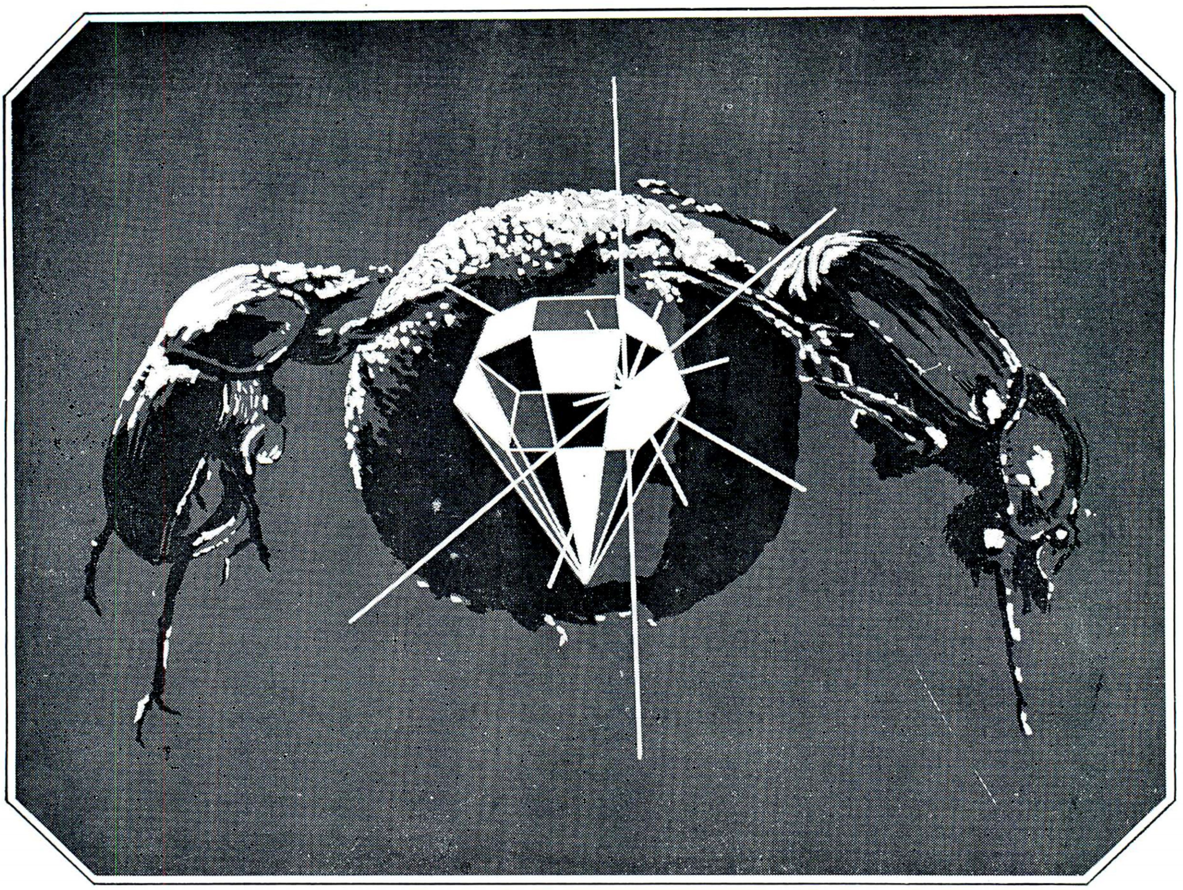
営業時間：9時～18時
休　　日：毎日曜，祝祭日，10月1日



真珠より美しく
ダイヤより価値がある
大切な標本を永久に守る
《ドイツ型標本箱》

自然はますます大切なものとなってきました。この不思議な世界を解明する貴重な手掛りとなる昆虫標本は、価値あるものとして永久に保存したいものです。

そんな願いをこめて、タツミ製作所では、昆虫標本の保存に最適なドイツ型標本箱をお届けします。

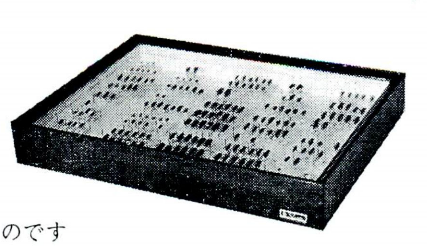
＊すばらしい特長

●くるいのこない良質な木材を使用
●湿気や乾燥にも強い独特の構造
●パラゾールにも変化せず、標本がより美しく見える白色プラスチック底
●高級ニス塗装の丈夫で美しい仕上げ

※標本箱のほか、展翅板など昆虫標本作成に必要な器材もあります。昆虫器材カタログ、昆虫関係輸入図書・委託図書リストもあり。

〒113　東京都文京区湯島二ー一二ー一五　☎〇三（八一一）四五四七（ヨイシナ）
郵便振替　東京一一三四七九

㈲タツミ製作所



大型
５，０００円（送料別）
中型
４，５００円（送料別）
この価格は昭和52年11月現在のものです